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January 5, 1882.

THE
JOURNAL OF HORTICULTURE,
COTTAGE GARDENER,

AND
HOME FARMER.

A CHRONICLE OF COUNTRY PURSUITS AND COUNTRY LIFE, INCLUDING POULTRY, PIGEON,
AND BEE-KEEPING.

CONDUCTED BY
ROBERT HOGG, LL.D., F.L.S.

Established



in 1848.

VOLUME III. THIRD SERIES.

JULY TO DECEMBER, 1881.

LONDON:
PUBLISHED FOR THE PROPRIETOR, 171, FLEET STREET

1882.

LONDON:
PRINTED AT THE JOURNAL OF HORTICULTURE OFFICE,
171, FLEET STREET.



TO OUR READERS.

ON the completion of another half-yearly volume our first duty and pleasure is to acknowledge the greetings of those numerous readers who have appended them to their letters and communications during the past few weeks, and to assure our friends that their good wishes are esteemed and reciprocated.

Several of those letters we are tempted to publish, but we can only give extracts from two of them—one as a type of those showing that our contributors have not laboured in vain, but that the seed they have sown has produced fruit; the other as a proof of earnest reading, and a novelty—even to us who are accustomed to a variety of styles—in expression.

“Last year” writes a correspondent, “I sent you a letter on my success in Grape-growing; this year I send you an example of my work. Each year I have improved on the past, and this season the crop is better than ever. I wish also to say that I owe all my success to the Journal, and I look for the paper every Thursday afternoon with as much interest as I look for my dinner.”

Our only comment on this letter is that we hope the writer of it will always have a good Journal, a good dinner, and good Grapes.

The next letter we have preserved is dated several weeks back, and is somewhat amusing. “I am,” says the writer of it, “always glad to receive the Journal. The last number arrived after a long and busy day, and at night I was too tired to read it all, but awaking about two o’clock in the morning I slipped on my jacket and slippers, went down stairs and read with much pleasure the first day of a ‘Week in Belgium’ and Mr. Pettigrew’s ‘Autobiography,’ and then went to roost again.”

We do not desire to disturb the repose of our readers, but wish to make our pages both interesting and useful, and with such skilled and ready helpers as we are so fortunate as to possess we shall not fail in our object.

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" <i>Vidallii</i>	153	<i>Hydrangea involucrata vera</i>	273	<i>Rosa rugosa</i>	293
<i>Chænostoma hispidum</i>	443	Insects— <i>Bombyx Mori</i>	471	<i>Senecio pulcher</i>	312
<i>Chelone obliqua</i>	243	" <i>B. neustria</i>	471	Spray diffuser, Wells's	135
<i>Chrysocoma Linosyris</i>	309	" <i>Julus terrestris</i>	159	Tree-lifting implements	318
<i>Cimicifuga spicata</i>	239	" Silkworm, digestive apparatus of	545	<i>Tropæolum speciosum</i>	521
<i>Clarkia Mrs. Langtry</i>	32	" " larva of and cocoons	589	Tubrose, The Diamond	583
<i>Clethra alnifolia</i>	263	" Water spiders	289	<i>Violet Princess of Prussia</i>	515



7th	TH	Shrewsbury, Horsham, and Norwich Rose Shows.	
8th	F	Twickenham and Tunbridge Wells Exhibitions.	[Shows.
9th	S	Brockham, Brighton Aquarium, and Alexandra Palace Rose	
10th	SUN	4TH SUNDAY AFTER TRINITY.	
11th	M		[11 A.M.
12th	TU	Royal Horticultural Society, Fruit and Floral Committees at	
13th	W	Kingston Horticultural Exhibition.	

CORDON FRUIT TREE TRAINING.

REPEATEDLY has the value, importance, and simplicity of cordon fruit tree training been set forth in the Journal, and very gratifying is it to know that many readers have been induced to adopt this system of fruit culture. It must, indeed, eventually become the most popular of all in gardens, for the simple but weighty reasons that it insures fruitfulness in the trees when very young, it usually affords a supply of fruit when most other systems fail, and it requires so little space that it is as applicable to small as to large gardens.

What, then, is a cordon? It is a small tree with a single stem and no branches, the stem being thickly set with closely pruned spurs upon which the fruit is borne. It is trained either against a wall or wire fence, erect, aslant, or bent down at right angles to the ground and trained along within a foot of its surface, the different methods being technically termed vertical, diagonal, and horizontal. Vertical cordons are sometimes used for very lofty walls or buildings, and they are undoubtedly useful for filling narrow spaces or nooks. But preference is usually given to the diagonal form because of the greater length of stem which is trained to an angle of 45°. Du Breuil, the originator of this system, advises in his valuable book "*De la Conduite des Arbres Fruitières*," that they should at first only be trained to an angle of 60°, and not brought so low down as an angle of 45° till the cordon has made two-thirds of its full growth. But they have been found to answer admirably when kept to the lower angle from the first, the plan followed here being to plant the trees 18 inches apart, as Du Breuil advises, to make a mark for each tree from top to bottom of the wall at an angle of 45° for the trainer's guidance. To insure uniformity horizontal cordons have been commended for the growth of such choice and tender sorts of Apples, as Calville Blanche, Newtown Pippin, and American Mother when trained to low walls, or upon wire along the margin of fruit borders. This they are certainly calculated to do, but I must confess that, judging from the poor crops upon those which I have seen, success is improbable without affording shelter to the blossom, which may easily be done from their closeness to the surface of the ground.

Double cordons are occasionally to be met with, but they are undesirable, the difficulty of keeping an equal distribution of vigour being altogether avoided by keeping to that best of all forms the single-stemmed diagonal. The famous diagonal cordon Pear trees at Holme Lacy, the seat of Sir Henry Scudamore Stanhope, were planted, one half in 1861 and the other

half four years later, and the trees were allowed to bear fruit in three years after the planting. Almost all the trees have continued to yield large crops of fruit annually—fruit that is infinitely superior to that grown on pyramids or espaliers, and the trees continue in full health and vigour. This wall is 111 feet long and 11 feet high, it faces the south, and the trees incline to the west.

In the winter of 1873 I planted an east wall 200 feet long and 10 feet high with single cordon Pears, which incline to the north. A few of them were allowed to bear some fruit in 1875, to afford proof of how soon it might be had by this method. Very few of them fail to yield crops of excellent fruit now, but it cannot be said that any of the trees are yet in full bearing; still it is surprising what a large number of dishes of fine fruit they afford for the dessert. My reason for saying they are not in full bearing is the small size of the spurs, they will bear more and more fruit as they increase in size, which they will continue to do for some years to come. Much difference was perceptible in the upward growth of the various sorts; some, like Pitmaston Duchess, growing with a sturdy vigour that soon brought it to the top of the wall, while others, like Dana's Hovey, have hardly yet attained the required length of stem. Many years are required to obtain perfect uniformity of appearance along the whole of the wall, and Du Breuil's computation that a wall 12 feet high would be covered in five years only proves correct of some vigorous trees, and not of all.

Much hesitation was shown by many good gardeners in the adoption of cordons, and it was by no means uncommon to hear such terms as "toys" and "nurserymen's puffs" applied to them. It was also thought that the unusual suppression of vigour involved in confining the growth of a fruit tree to a stem some 10 or 12 feet long and to closely pruned spurs, would result in attempts to make fresh growth rather than a regular yield of really useful fruit. All such ideas have proved erroneous, and the only objection now raised is the small quantity of fruit that a cordon can possibly bear at best. This difficulty is, however, readily overcome by planting two or a dozen of any sort much in demand, and this must be regarded as a decided advantage, for more or less variety may be had at will, and a much better succession of fruit maintained than was possible before. Moreover, in the little garden where of yore a solitary Pear tree was all that wall space could be afforded for, a dozen or two of cordons may now be found, and the attendant advantages on this improved state of things are so apparent that I need not enlarge upon them.

Regarded at first as specially suitable for Pears on the Quince, cordons have subsequently been utilised in the culture of Apples, Plums, Cherries, Damsons, Currants, and Gooseberries. Much has been done in this direction at Barham Court, the seat of Roger Leigh, Esq., under the superintendence of Mr. Haycock, and at The Mote, the residence of Lady Howard De Walden, by Mr. Peirce, both gardens being situated in the centre of the Kentish fruit-growing district, and in both are to be seen large numbers of diagonal cordons, not only on walls but on double and single trellises. The latter at The Mote are taken right across the squares of the kitchen garden at regular intervals, affording a remarkable contrast to the old espaliers which used to bear such wonderful crops of fruit, and about which accounts appeared in the Journal many years ago. This is an example of progress and not of mere change

that is quite worthy of record. The espaliers answered admirably for many years, but they eventually became a thicket of huge spurs at the top, and the lower branches lost all their vigour and fruitfulness.

Eighteen inches apart is the best distance for cordons. Select vigorous young trees, and shorten the leading shoot to about 2 feet of the current year's growth at the time of planting. It may be allowed to extend 2 feet annually till it reaches the top of the wall, not in one growth, but rather by nipping off the end in spring after it has grown a foot long, in order to render the buds at the base of each leaf full and plump, and a vigorous second growth soon follows, which is best left unshortened till the leaf falls in autumn. Pinching the laterals three or four times may only be done in warm, sunny, southern gardens; in less favoured situations two prunings, one in July and the other in October or November, are all that must be ventured upon to secure well-ripened fruit buds upon the spurs.—EDWARD LUCKHURST.

HINTS FOR AMATEURS.

A FEW seasonable and practical notes are always welcomed by amateurs, who often encounter difficulties which are easily surmounted under the aid of a little clear explanation. To assist in this way was the writer's object in penning the following notes.

COLEUS.—There are numerous beautiful varieties of these; and as they can be had very cheaply by post, all with a greenhouse or even a frame may possess them—for a time at all events. When first required, or when potted from cutting pots, they should be placed in the small pots, using any light sandy soil. The warm moist atmosphere of a Cucumber or Melon frame will most quickly establish them: after this they may be grown during the summer and early autumn months in an ordinary cool greenhouse. If it is intended to increase the variety, the young plants should be allowed to grow till long enough to admit of the top being taken off and struck (which is an easy matter providing the cuttings are placed in heat); otherwise stop beyond the second joint, potting when breaking afresh. To secure plants of good shape, pinch out the points of the fresh growth at the first joints, and, if well rooted, transfer into larger pots. This ought to be the final potting, and the 8-inch pots should in most instances be the largest size employed. Overpotting is often a cause of failure in the case of Coleuses grown in cool houses. No particular compost is necessary; that which will suit them well consists of two parts of light turfy loam to one of leaf soil, with a slight addition of sifted decomposed manure and sand. The pots should be clean and very carefully drained. When well established frequent supplies of liquid manure will be found most beneficial, withholding this and giving much less water as the nights become colder, or they will soon lose their foliage. The pyramidal method of training is most suited to Coleuses, and especially the coarser-growing varieties. To secure pyramids pinch back a third time all growths with the exception of one near the centre; this to be staked and to grow unrestricted, and, the base being formed, all that is necessary is to stop the side shoots from the leader to the required length till the specimen is formed, when stopping should cease. Some of the smaller-leaved kinds are very pretty grown in 5-inch pots and pinched so as to form neat flat heads.

FUCHSIAS.—Much of the foregoing relating to potting, pinching, and training is equally applicable to Fuchsias. They are not, however, so "good-tempered" as Coleus, and succeed indifferently in the seldom-syringed, badly shaded, and badly ventilated houses of many amateurs; indeed, would thrive far better in the open. Fuchsias are liable to be infested with thrips, and especially with red spider, which in either case results in a check to the growth and a loss of the foliage. Frequent syringing will keep down either pest. Should, however, syringing fail to check thrips or aphides, next to fumigation with tobacco paper a decoction obtained by boiling soft soap and quassia chips will prove an effective insecticide and less injurious to the plants operated upon. It will soon be found at what strength to use the solution, but for the beginners' guidance we recommend preparing at the rate of 1 lb. each of quassia and soft soap, boiling these in about a gallon of soft water till the chips sink, when the solution may be poured off and used as required at the rate of half a pint to a gallon of soft water. In the evenings syringe the infested plants freely with this, repeating the operation occasionally, and increasing the strength if necessary. Quassia chips can be procured cheaply from most chemists. Red spiders are very minute, but whenever they, or rather their work, is discovered, and which is soon apparent in the yellowish tinge assumed by the foliage

where affected, mix a handful of flowers of sulphur with the syringing water, and with the syringe discharge on to the under side of the leaves. This should be continued till the cure is effected. Vines, Peaches, Melons, Cucumbers, and other kinds of fruits should, when infested by either red spider or mildew, be similarly treated. The sulphur will not injuriously affect the fruit, and can be syringed off at any time. Both the above remedies are simple and cheap, and are recommended for flowers and fruit trees, in the open as well as under glass.

TORENIA FOURNIERII.—This easily-grown beautiful annual succeeds admirably in a cool greenhouse, and is very effective when associated with Pelargoniums, Coleuses, and Balsams. The seed germinates freely in heat providing it is not buried deeply. Those who may have their stock now in the seed pots or pans should not long delay potting off the seedlings, which may be performed when large enough to handle. A light sandy soil is most suitable in the first instance, but when the final potting is given soil similar to that above recommended for Coleuses ought to be employed. If it is intended to flower the plants in 5-inch pots, pot off the seedlings singly into thumb pots; or three plants may be disposed round the sides of 3-inch pots, and eventually transferred to 6-inch pots. In the former instance the plants assume a trailing habit, but by growing them in threes they are induced to grow more erect, and in this way are most showy. It is advisable to grow them in gentle heat and where but little shaded till well established, and to pinch back the young growths till well furnished with flowering shoots. Liquid manure occasionally supplied will much improve the colour of the bloom as well as increase the vigour of the growth. This *Torenia* flowers very freely in cottage windows. *T. Baillonii* is a yellow-flowering kind.—W. I. M.

THE BEST TIME TO PLANT STRAWBERRIES.

As a rule I think Strawberry growers make new plantations too late in the season. Few think of planting until the end of August or during September, when the plants have barely time to root in the soil before the cold weather stops all growth, and the following spring they are neither strong nor fruitful, but must grow for the greater part of the season before they are capable of bearing a crop of fruit. According to my experience better results than this may be had from the same amount of labour, the only difference being in the time of planting. The advantages of early planting may be easily shown.

All new Strawberry plantations should be formed as early in July as possible. By the end of September the plants will be well established, and a good crop of fruit will be had the following season. Indeed a season is gained by early planting. We intend destroying some of our old Strawberry plants as soon as the crop has been gathered, and making new plantations at once in well trenched and manured ground. In clearing off the old plants, however, all will not be thrown away, as those runners which were allowed to root into the ground about the edge of the rows last year will be carefully lifted and saved for planting. Plants of this kind we find are the best of all for making an early fruitful plantation, and they can be easily secured without loss or much labour. Besides this, they fruit sooner and more freely than small scarcely rooted runners. We have no objections to plant Strawberries after Strawberries, but others may wish to change the position of the beds, in which case the young plants can be lifted and planted in their new quarters while the fruit is still on the old rows, and a very early start will thus be secured. By following out a system of this kind no one need have a Strawberry plantation without a crop, but under the late mode of planting one year's crop is always lost.

New Strawberry ground cannot be too clean and free from weeds. In preparing the ground for Strawberries any rough material may be placed in the bottom of the trenches and the best of the dung placed nearer the surface. Before planting the soil should be allowed to become rather dry on the surface, and immediately afterwards it should be trodden all over and rendered as firm as possible. This has a tendency to make the plants grow dwarf, robust, and fruitful in character.

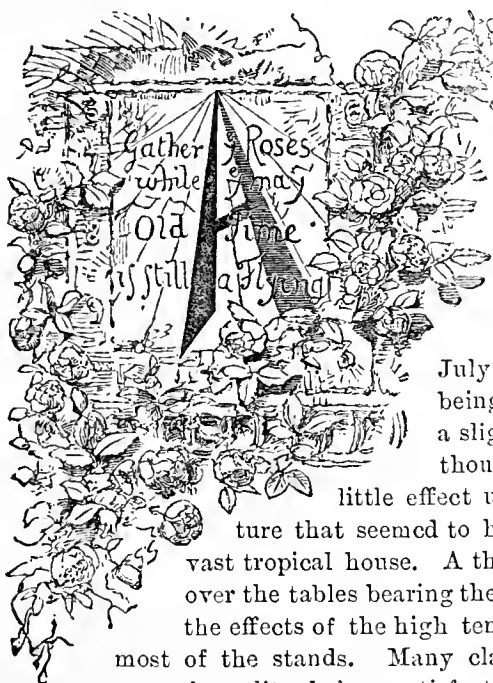
Good balls of soil should be secured with the young plants when lifting them, and they should be well watered in dry weather.—A KITCHEN GARDENER.

THE DOMINY PRESENTATION.—Mr. Dominy's best friends must needs feel delighted at the quiet and efficient way in which subscriptions to his presentation fund have been obtained. Indeed all who know Mr. Dominy will feel it a privilege to express their good will and respect for such an earnest and original worker. It

is most desirable, however, that horticultural amateurs, and the patrons of gardening generally, should have a clear idea of Mr. Dominy's merits, since these have been of the most practical kind. He was absolutely the first cultivator to succeed in the hybridisation of Orchids and Nepenthes. *Cattleya exoniensis* and *Calanthe Veitchii*—the one a most beautiful, and the other a most useful Orchid—are alone sufficient as examples of Mr. Dominy's work in this way. But he has done much more than raise these lovely plants, for he raised hybrid Orchids at a time when such a result was deemed highly improbable if not impossible; and his practice in this way was distinctly ahead of the botanical science of the time. Even Darwin's work on the "Fertilisation of Orchids" was not written until long after Mr. Dominy had demonstrated the possibility of their being not only fertilised but hybridised successfully. The Horticultural Society of Exeter were, I believe, the first to honour Mr. Dominy's skill and labour in this way, and now an opportunity presents itself for all interested in gardening to join in honouring Mr. Dominy's labours in the cause of horticulture. We all owe a debt of gratitude to Sir Trevor Lawrence, Bart., M.P., 57, Prince's Gate, London, W., inasmuch as he has kindly consented to receive subscriptions from those who are desirous of thus honouring Mr. Dominy's original labours.—DUBLINENSIS.

NATIONAL ROSE SOCIETY, CRYSTAL PALACE.

JULY 2ND.



ROSE SHOW at Sydenham under the auspices of the National Society invariably attracts many visitors, but they have scarcely been more numerous on any previous occasion than they were on Saturday last. Typical

July weather prevailed, the heat being intense, tempered only by a slight haze and a breeze, which though perceptible outside had

little effect upon the huge glass structure that seemed to have been converted into a vast tropical house. A thick awning was suspended over the tables bearing the blooms, but in a few hours the effects of the high temperature were manifest in most of the stands. Many classes were well filled, the general quality being satisfactory, though instances were not wanting where the blooms were characterised by considerable roughness. The amateurs appeared in strong force, the majority staging handsome collections of fresh brightly coloured blooms. Indeed as regards colour the blooms were fine throughout all the classes the crimsons being particularly rich. That there is no diminution of interest in the Society's exhibitions, either on the part of the exhibitors or that of the public, was well indicated at the Show of 1881 by the extent of the display and the number of visitors—facts which must afford a deserved satisfaction to all the officials connected with it.

AMATEURS' CLASSES.—The competition in many of these classes was keen and interesting, the general quality being highly commendable, and occasioning the Judges considerable difficulty in awarding the prizes in some instances where there were a large number of entries nearly equal in merit. A very satisfactory neatness of form accompanied by fresh, bright, well-developed colours marked most of the blooms, and in some of the leading collections flowers of fine substance and size, yet without any approach to coarseness, were included. The principal class was that for forty-eight, distinct, single trusses, in which the first prize was a challenge cup offered by nurserymen and £6. Only three collections were, however, staged, R. N. G. Baker, Esq., Heavitree, Devon, easily securing chief honours with beautiful blooms of great substance, full, even, and the colours very rich. The varieties represented were Mrs. Baker, Duke of Connaught, Devienne Lamy, very fine; Louis Van Houtte, Senateur Vaisse, bright; Auguste Rigotard, fresh; François Michelin, very good; Madame Victor Verdier, Comtesse d'Oxford, Marguerite Brassac, full, handsome; Star of Waltham, Camille Bernardin, Marguerite de St. Amand, Duchesse de Caylus, very neat; Gabriel Tournier, Comte Raimbaud, Ferdinand de Lesseps, bright;

Madame Sophie Fropot, Beauty of Waltham, Madame Etienne Levet, beautiful; Alfred Colomb, John Bright, excellent; Duke of Edinburgh, large; Madame H. Jamain, Charles Darwin, Penelope Mayo, handsome; Sultan of Zanzibar, Madame Gabriel Luizet, Victor Verdier, Mrs. Laxton, Thomas Mills, Marie Baumann, good substance; La France, Le Havre, Sir Garnet Wolseley, Alfred K. Williams, bright; Dr. Andry, Baronne de Rothschild, Mdle. Marie Rady, Pauline Talabot, Mons. E. Y. Teas, Marie Verdier, Mdle. Marie Cointet, Marquise de Castellane, Madame A. Lavallé, and Dupuy Jamain. Mr. J. French, gardener to the Rev. J. P. Tomlinson, Rooklands, Torquay, was placed second with smaller blooms of less substance, but very fresh, and including a good selection of varieties. The best blooms were Prince Camille de Rohan, Sir Garnet Wolseley, Madame Etienne Levet, Alfred Colomb, and Marie Baumann. Thomas Hall, Esq., Larch Wood, Rookferry, was third with a slightly irregular collection. Thomas Methven and Duchesse de Caylus were, however, well represented.

For twenty-four single trusses Mr. R. N. G. Baker was again first in a class of five competitors. The quality of his blooms was very similar to that distinguishing the collection mentioned above. Some of the most noticeable were Marquise de Castellane, Mons. E. Y. Teas, Charles Lefebvre, Duke of Edinburgh, Mrs. Baker, Duke of Wellington, Thomas Mills, Mrs. Laxton, Duchesse de Caylus, Alfred Colomb, and Mdle. Marie Rady. Mr. Chas. Davies, Grammar School, Aynhoe, near Banbury, followed with even and beautiful blooms; Pauline Talabot, Charles Lefebvre, Xavier Olibo, Dr. Andry, John Stuart Mill, and Marguerite Brassac being fine. The Rev. J. P. Tomlinson was third, and Mr. John Hollingworth, Turkey Court, Maidstone, fourth, both with very fair examples. The best twelve triplets were staged by the successful exhibitor Mr. R. N. G. Baker, who had Hippolyte Jamain, Alfred Colomb, La France, François Michelin, Duke of Connaught, Mons. E. Y. Teas, Mdle. Marie Rady, Marquise de Castellane, Penelope Mayo, Marie Baumann, and Duke of Edinburgh in excellent form. Mr. Hollingworth, the only other exhibitor in the class, was second with fine examples of Le Havre and Camille Bernardin amongst others.

In the class for twelve Teas or Noisettes, distinct, single trusses, the first prize consisted of a five-guinea silver cup presented by Mr. G. Prince of Oxford, which was won by Mr. C. Davies, with very neat and pretty blooms of Maréchal Niel, Mons. Furtado, fine; Catherine Mermet, a remarkably handsome bloom of good substance and exquisite form, for which the Society's silver medal was accorded as the best Tea Rose in the Exhibition; Belle Lyonnaise, Souvenir de Paul Neyron, Marie Van Houtte, Madame Caroline Kuster, Bouquet d'Or, Countess Nadaillac, Souvenir d'un Ami, Jean Ducher, and Niphotos. J. P. Hawtrey, Esq., Aldin House, Slough, followed with smaller but still creditable blooms. Souvenir de Paul Neyron, Hippolyte Jamain, and Madame Caroline Kuster were especially noteworthy. Mr. Hollingworth had a fine Souvenir d'un Ami and Jean Ducher in his third-prize collection; Mr. T. B. Hall being fourth with Alba Rosea and Marie Van Houtte in good form among others.

In Division D the principal class was for thirty-six single trusses, six even collections being staged. Mr. T. Jowitt, Old Weir, Hereford, secured the chief honours with fresh handsome blooms, not large, but of good substance and very bright. The varieties were Peach Blossom, Exposition de Brie, Edouard Morren, Fisher Holmes, Duchesse de Vallombrosa, Senateur Vaisse, Marie Finger, Alfred Colomb, Madame Angele Jacquier, Belle Lyonnaise, Mrs. Baker, Princess Mary of Cambridge, Horace Vernet, Gabriel Luizet, Ferdinand de Lesseps, Baronne de Rothschild, Prince de Rohan, Madame Julie Daran, La France, Etienne Levet, Marguerite de St. Amand, Mons. Fournier, Cheshunt Hybrid, Mons. Boncenne, Mons. Noman, Sir G. Wolseley, Madame Laeharme, Louis Van Houtte, Elie Morel, Jean Liabaud, Mdle. Verdier, Alexis le Père, Marquise de Castellane, Marie Baumann, and Charles Rouillard. Mr. J. Brown, gardener to H. J. Waterlow, Esq., Great Doods, Reigate, was a close second with a fine collection, but the most remarkable bloom it included was a grand example of Mdle. Marie Rady of excellent form and unusually bright in colour, well meriting the Society's silver medal awarded it as the best Hybrid Perpetual Rose in the Show. Mr. J. Davis, The Square, Wilton, Salisbury, and Mr. W. Harrington, Corbetstye, Romford, were awarded equal thirds; and Mr. J. H. Pemberton, Havering-atte-Bower, Romford, was placed fourth.

The competition in the class for eighteen single trusses was very keen, twelve collections being staged nearly equal in quality. Mr. W. J. Grant, Hope End, Ledbury, Hereford, secured the chief prize—a piece of plate value four guineas offered by an amateur—with fresh and creditable blooms. A. K. Williams, Dr. Andry, Dupuy Jamain, Paul Jamain, Gabriel Tournier, and Marquise de Castellane were very well represented. Mr. T. Jowitt followed very closely; T. F. Burnaby Atkins, Esq., Halstead Place, Sevenoaks, and Mr. Edwards, gardener to Rev. Canon Tarver, Stisted Rectory, Braintree, Essex, being third and fourth respectively. The most remarkable competition was, however, as usual in the class for a dozen single trusses, no less than twenty stands being contributed—two more than last year. Mr. J. Ridout, gardener to Thos. B. Haywood, Esq., Woodhatch Lodge, Reigate, was most worthily accorded the premier prize for a very handsome collection which this skilful grower has scarcely excelled on previous occasions, fine as his blooms invariably are. Regularity of form, substance, and an unrivalled richness of colour distinguished all the flowers. The varieties were Marquise de Castellane, Marie

Baumann, Duke of Wellington, Duchesse de Vallombrosa, Comtesse d'Oxford, Countess of Rosebery, Edouard Morren, Marie Rady, Beauty of Waltham, Duke of Edinburgh, Alfred Colomb, and Etienne Levet. The remaining prizes were taken by Mr. Grant, Mr. Alfred Evans, Marston, Oxford, and the Rev. H. Biron, Harbledon, all exhibiting well. For six triplets a dozen competitors entered. Mr. Pemberton was first with substantial examples of Exposition de Brie, Baronne de Rothschild, Marquise de Castellane, Duke of Edinburgh, Marie Cointet, and Charles Lefebvre; Mr. Fred. C. Pawle, Northcote, Reigate, taking the second place for good blooms. Mr. Moorman, gardener to the Misses Christy, Coombe Bank, Kingston, being a very close third with good quality blooms, and Mr. Grant fourth. Mr. Pemberton was again the most successful exhibitor of nine Teas and Noisettes, staging pretty blooms of Souvenir d'un Ami, Madame Bravy, Belle Lyonnaise, Niphotos, Adam, Caroline Kuster, and Homère. Mr. F. Gurden, gardener to Miss W. Taylor, Manor House, Headington, Oxon, was third, followed by the Rev. H. B. Biron and Mr. Grant.

The class for twelve single trusses in Division E was fairly well filled, six stands being contributed. Mr. W. H. Wakeley, Macklands, Rainham, was first with excellent blooms, of good substance and neat in form. The Rev. H. A. Berner, Harkstead Rectory, Ipswich, was a close second; Mr. F. T. Wollaston, Dovers, Reigate, third; and Mr. Charles Taylor, Headington, Oxford, fourth. For nine singles Mr. Wakeley was again to the front with a similar collection, followed by Mr. J. Burton, Sawtry, Peterborough; Mr. C. Horne, Park House, Reigate; and Mr. E. Mawley, Addiscombe, Croydon. There were eleven stands of six single blooms, of fair quality generally. The prizetakers were Mr. C. E. Cuttrel, Chapel Croft, Dorking; Mr. F. Burnand, Farningham, Kent, a very close second; and John E. Coleby, Esq., Wimbledon, third. Six Teas or Noisettes were contributed by eight exhibitors, Mr. E. Mawley carrying off the chief prize for good examples of Madame Camille, Alba Rosea, Marie Van Houtte, Rubens, Souvenir d'un Ami, and Madame Willermoz. Mr. Slaughter, Jarvis Villa, Steyning, was a good second, Mr. E. Horne and the Rev. H. Berner following closely in that order.

The next four classes in the schedule were denominated extra, being chiefly for Roses grown in the suburbs of London by amateurs. Of six single trusses of suburban-grown Roses there were four exhibitors, three being from Wimbledon, and well maintaining the credit of the district. John E. Coleby, Esq., was accorded the chief prize (a piece of silver plate, presented by Mr. Edward Mawley) for small but neat and fresh blooms of Louis Van Houtte, Victor Verdier, Alfred Colomb, François Fontaine, and Capitaine Christy, the last-named being unusually fine. Mr. W. Scott, Clinton Villas, South Wimbledon, was a good and close second, staging excellent examples of Hippolyte Jamain, Louis Van Houtte, and Abel Carrière. Mr. T. Foote, gardener to Mrs. Tredwell, Leigham Court, Streatham Hill, was third; and Dr. Pitcairn, Wimbledon Hill, fourth, both with creditable collections. In the class for six single trusses, confined to amateurs who had not previously taken a prize at any exhibition of the Society, there were eleven entries, Mr. Alfred Slaughter securing the first prize for a highly satisfactory collection of good quality blooms, which promised well for the future efforts of their owner. The varieties represented were La France, Baron Adolphe de Rothschild, Comtesse d'Oxford, Catherine Mermet, Mons. E. Y. Teas, and Mdlle. Marie Verdier. Mr. J. Burton was second, having Capitaine Christy, Reynolds Hole, and Exposition de Brie very fine. Mr. Moorman obtained the third position with bright well-formed blooms, and the Rev. Page Roberts, Scolt Rectory, was fourth. Only one stand of six suburban-grown Teas or Noisettes was contributed—namely, by Mr. H. W. Tyrrell, The Cottage, South Norwood Park, for which the second prize was awarded. They were not large, but of fair quality. For six new Roses not in commerce previous to 1878, Mr. J. Pemberton obtained the silver cup presented by George Baker, Esq., as the first prize. The varieties were Charles Darwin, Barthelemy Joubert, Harrison Weir, A. K. Williams, Countess of Rosebery, and Duchess of Bedford, of medium size, but very bright. Mr. Jowitt was a close second, staging Mabel Morrison, remarkably fine; Mrs. Jowitt, Madame Gabriel Luizet, Madame Alfred Dumesnil, Madame Julie Dymonier, and a seedling. Mr. P. Hawtrey was third with Mrs. Harry Turner, Jules Finger, Richard Laxton, and Beauty of Stapleford, in addition to several of those mentioned above.

NURSERYMEN'S CLASSES.—Following in the order of the schedule we commence with the classes open to nurserymen only, which was divided into two divisions, A and B. For seventy-two distinct varieties Mr. B. R. Cant, Colchester, was awarded the premier position with a capital collection, comprising Edouard Morren, Mons. E. Y. Teas, Marquise de Castellane, Dr. Sewell, Comtesse d'Oxford, Prince Arthur, Madame Gabriel Luizet, Marie Baumann, Abel Grand, Charles Lefebvre, Marguerite de St. Amand, Alfred Colomb, Comtesse de Serenye, Dupuy-Jamin, Princess Mary of Cambridge, Madame Prosper Langier, Hippolyte Jamain, Abel Carrière, Madame Lacharme, Reynolds Hole, Ville de Lyon, A. K. Williams, magnificent; Duc de Wellington, Sénateur Vaisse, Emily Laxton, François Michelin, Horace Vernet, Devoniensis, Ferdinand de Lesseps, Baronne de Rothschild, Etienne Levet, Mons. E. Dupuy, Jules Chrétien, Duchesse de Vallombrosa, Camille Bernardin, Marie Van Houtte, Fisher Holmes, Elie Morel, Maurice Bernardin, Annie Laxton, John Hopper, Mdlle. Marie Cointet, Le Havre, grand; Madame Nachury, Madame Thérèse Levet, Madame C. Kuster, Boieldieu, Madame Bravy, Madame Ferdi-

nand Jamain, Mad. Caillat, Constantin Tretiakoff, Capitaine Christy, Duchesse du Caylus, Reine du Midi, Mrs. Baker, Sophie Coquerelle, Mrs. Laxton, Madame Truffaut, Mons. Noman, and Duke of Edinburgh. Mr. C. Turner, Royal Nurseries, Slough, ran Mr. Cant very closely, and received the second prize: Horace Vernet, Star of Waltham, A. K. Williams, Madame Victor Verdier, Sénateur Vaisse, Souvenir de W. Wood, Harrison Weir, Le Havre, and Etienne Levet were all handsome in this collection. Messrs. Curtis, Sandford, and Co., Devon Rosery, Torquay, were awarded the third prize, Mons. E. Y. Teas, Duke of Edinburgh, Etienne Levet, and Madame Lacharme being the most noticeable flowers. Many of the others were not so fresh and bright as those staged by the two former exhibitors, but considering the great distance they had travelled, and that they were cut in a temperature of over 80°, it was surprising they secured the honours they did. Messrs. James Mitchell & Sons, Piltown Nurseries, Uckfield, Sussex, were placed fourth. There were five competitors.

For forty-eight, distinct, three trusses of each, Mr. Cant again secured the premier position with a magnificent collection, including Antoine Ducher, Maréchal Niel, Edouard Morren, Dupuy Jamain, Mdlle. Eugénie Verdier, Général Jacqueminot, Duchesse de Vallombrosa, Catherine Mermet, Annie Laxton, Prince Arthur, Madame Marie Finger, Etienne Levet, Ville de Lyon, Ferdinand de Lesseps, Comtesse de Serenye, Mdlle. M. Dombrain, good but not often seen; Louis Van Houtte, Alfred Colomb, Le Havre, Horace Vernet, Gloire de Vitry, Madame Prosper Langier, Madame Ferdinand Jamain, Maurice Bernardin, Marguerite de St. Amand, Exposition de Brie, Devoniensis, Jules Margottin, Fisher Holmes, Countess of Rosebery, François Michelin, Constantin Tretiakoff, Madame Gabriel Luizet, fine; Elie Morel, Rubens, Comtesse d'Oxford, Souvenir de la Malmaison, Charles Lefebvre, Marie Van Houtte, Abel Carrière, Mdlle. Marie Cointet, Maurice Bernardin, Marquise de Castellane, Madame Charles Wood, John Hopper, and Dr. Andry. Mr. Turner was awarded second honours. Marguerite Brassac, Maréchal Niel, Constantin Tretiakoff, Prince Arthur were very fine. Messrs. Curtis, Sandford, & Co. were a very close third; their Marie Verdier, Madame Gabriel Luizet, Alfred Colomb, and François Michelin being magnificent. Messrs. Paul & Sons were fourth with a very fresh collection, but the blooms rather small. In this class there were also five competitors. In the class for twenty-four, distinct, three trusses of each, Mr. Cant, as in the previous classes, was again to the front with a superb collection, but containing most of the varieties named above. Mr. Turner and Messrs. Curtis & Co. occupied exactly the same positions here as in the other classes—second and third respectively, and Messrs. Paul & Son fourth. There were four collections staged.

Teas were well and boldly exhibited by the trade. Mr. Prince's collection of twenty-four was exquisite, so even and regular, and consisted of Belle Lyonnaise, Madame Charles, Madame Camille, Homère, Innocente Pirola, Marie Sisley, Comtesse Nadaillac, Comtesse Riza du Parc, Souvenir d'Elise Vardon, Anna Ollivier, Alba Rosea, Maréchal Niel, Souvenir d'un Ami, Perle des Jardins, Rubens, Madame Willermoz, Souvenir de Paul Neyron, Souvenir de Madame Pernet, Jean Ducher, and Marie Van Houtte. Mr. Cant was awarded the second prize. Many of his flowers were larger than Mr. Prince's, but others were loose. Devoniensis, Niphotos, Madame Lambard, Jean Ducher, Madame Margottin, Goubault, and Catherine Mermet were handsome. Messrs. James Mitchell & Son received the third prize, and Messrs. Paul & Son the fourth, both exhibiting good collections.

In the second division of the nurserymen's classes the principal was that for forty-eight single trusses, in which seven competitors appeared. Cranston's Nursery and Seed Company, Hereford, were easily first with beautiful blooms of admirable quality, Duke of Edinburgh, Exposition de Brie, Louis Van Houtte, Mary Pochin, Pierre Notting, Marquise de Castellane, and Mons. Boncenne being especially noteworthy. Mr. James Walteers, Mount Radford, Exeter, was second with smaller blooms of good substance. Messrs. G. Bunyard and Co., Maidstone, and Messrs. Keynes & Co., Salisbury, were third and fourth respectively. With eighteen triplets Messrs. Cranston were again in the chief position, staging similarly fine blooms to those in the collection already mentioned. Perle des Jardins and Constantin Tretiakoff were very handsome. Mr. J. Walters, Messrs. Keynes & Co., and G. Bunyard & Co. followed in that order, all contributing very good blooms. Messrs. Kinmont & Kidd, Canterbury, had the best twenty-four singles, of very fine quality and well selected. La Rosière, Duke of Edinburgh, Lord Macaulay, and François Michelin were notable for their admirable form. Mr. G. W. Piper, Uckfield, and Mr. J. Walker, Thame, secured the third and fourth awards with fair examples. The winning collection of eighteen Teas or Noisettes was staged by Messrs. Cranston. It included fine representative blooms of the following varieties—Catherine Mermet, Caroline Kuster, Gloire de Dijon, Anna Ollivier, Madame Willermoz, Maréchal Niel, Souvenir de Paul Neyron, Perle des Jardins, Souvenir d'un Ami, Niphotos, and David Pradel. Mr. G. W. Piper took the second place with blooms very close to the preceding in point of quality. Mr. J. Walters, and Mr. J. Mattock, Headington, Oxford, secured the remaining prizes.

OPEN CLASSES.—For twelve new Roses not in commerce previous to 1878 there were four exhibitors; Mr. C. Turner, Slough, and Messrs. G. Paul & Son, Cheshunt, being awarded equal first prizes for handsome collections; Messrs. Curtis, Sandford & Co., Torquay, the Crauston Nursery and Seed Company, Hereford, following. In

the Slough stand the varieties were Countess of Rosebery, Duchess of Bedford, Egeria, Charles Darwin, Mrs. Harry Turner, Madame Morane, Harrison Weir, Jules Finger, Wilhelm Koelle, Madame Eugénie Finger, Dr. Sewell, and Barthelemy Levet. The Cheshunt stand included Comtesse de Cboisseul, Dr. Hogg, Mabel Morrison, Madame Julie Dymonier, and Catherine Souper, in addition to several of those named above. The Devon firm showed Leon Renault, Duke of Teck, Madame Etienne Levet, Ferdinand Chaffolte, and Souvenir de Madame Robert, very fine; Messrs. Cranston having Mrs. Jowitt, Boieldieu, Eliza Taisson, Edward Pynaert, and A. K. Williams noteworthy. For twelve single trusses of any yellow Rose Mr. G. Prince of Oxford was first with a stand of good Maréchal Niels, one of which was selected to be honoured with the Society's silver medal as the best Noisette in the Exhibition. Mr. C. Davies followed with Marie Van Houtte in good condition; Mr. Walters taking third with fair Maréchal Niels. For twelve blooms of any white Rose Mr. R. B. Cant was first with Devonensis, fine; and Messrs. Curtis, Sandford, & Co. second with Duchesse de Vallombrosa, both neat and of good size. For twelve pink Roses Messrs. Curtis, Sandford, & Co. were first with François Michelin, fine; Mr. R. N. G. Baker being second with Etienne Levet, of good substance and colour; Mr. R. B. Cant was third; and in the next class for twelve crimson Roses was first with Alfred K. Williams, bright, full, and excellent; Mr. R. N. G. Baker followed with Duke of Edinburgh, very handsome; and Messrs. Curtis, Sandford, & Co. were third with Général Jacqueminot, of good form and colour. For six single trusses of any Rose Mr. Slaughter was placed first with Belle Lyonnaise in admirable form; Mr. Wakeley following with Capitaine Christy.

New H.P. Rose General Roberts.—Only one exhibitor appeared in the class for a seedling Rose not yet in commerce or announced—namely, Mr. C. Turner, who was awarded the first prize for a Hybrid Perpetual crimson variety named General Roberts. It is a bright-coloured handsome Rose of good form, somewhat resembling Charles Lefebvre in the build and petal, and possessing a tint suggestive of the Duc de Wellington.

Miscellaneous exhibits were not very abundant. Messrs. Cranston sent half a dozen boxes of Roses; Mr. G. Prince of Oxford had five boxes of Tea and Moss Roses; Mr. Walker, Tbame, Oxon, four stands of Sweet Williams and Roses; and Messrs. John Laing & Co. contributed a stand of Tuberous Begonia blooms.

THE BEST ROSE IN THE SHOW.

A well-known rosarian sends the following:—"To find the best Tea Rose was a very great difficulty from an *embarras de richesse*. To find the best Noisette was equally difficult from a contrary reason. It was eventually found in a box of rich-coloured Maréchal Niels of Mr. G. Prince's, his bloom being run closely by a remarkably fine Caroline Kuster shown by Mr. Hawtry.

"But, as might be expected after such a winter and such a spring, there was not a first-class Noisette to be found in the Exhibition. It will probably be submitted to the Committee whether this is not too small a class of Roses to be judged separately.

"The best Tea took much consideration. Several Souvenir d'Elise were extremely fine—in fact, almost to coarseness. Niphetos was shown in greater perfection than any other of its class, no less than three being submitted for second consideration, Miss H. Taylor's being particularly fine. Three Paul Neyrons also were at one time possible candidates; but at length, in a very beautiful prize Tea box of Mr. C. Davies there was found the unmistakeable queen of the Show—a very large most perfectly-shaped Catherine Mermet.

"Neither was the best Hybrid Perpetual this year easy to ascertain. A. K. Williams at one time seemed likely to be honoured in the splendid twelve box from Mr. Cant, there not being another first-rate specimen at the Palace. Two Marie Radys appeared as its rival, both of a shape and colour very near to perfection, in the boxes of Mr. Haywood and Mr. Waterlow, the former's only fault being a little want of size. The Rose eventually accepted as second was a Madame G. Luizet, a comparatively new Rose with large pointed bud and the smoothness and gloss of delicate peach-coloured ivory. Want of foliage was fatal to its further pretensions, Mr. Waterlow's Marie Rady being as perfect in this as all else.

"It was prophesied by one of our largest exhibitors that the Alexandra Palace Show on July 9th will be the great show of this season.—A. C."

THE BEST REMEDY FOR THE GOOSEBERRY CATERPILLAR.

I HAVE been rather amused at the alarm expressed by some of your contributors in case they used white hellebore powder, fearing they would poison themselves or their employers. I have employed it for more than twenty years. If anyone dusted his Gooseberry bushes with hellebore powder as thickly as the hedges of a dusty road it could all be readily washed off. I can most strongly recommend the following as a safe and sure remedy—Put 4 ozs. white hellebore powder and 2 ozs. of quassia chips into a two-gallon stone bottle, fill it with boiling water, shake it well, and allow it to become cold. Pour some of the contents into a basin or bucket, and with an old whitewash brush sprinkle it over the bushes, holding up the lower branches with a stick;

dash some of the liquid on to the under side of the leaves. I have found this most efficacious, not only for Gooseberry trees, but also for Currants, Raspberries, and Rose-tree pests.—G. O. S.

ANDROSACE LANUGINOSA.

THE Primula family contains a large number of beautiful and much-appreciated plants, which possess greatly varied claims upon the attention, some producing brilliantly coloured flowers, while others of more modest pretensions with soft-tinted flowers are yet recommended to notice by a charming gracefulness. Among the latter may be included the Androsaces; several of which are grown on rockeries in British gardens, chiefly from the European Alps and the Pyrenees. Among those that are particularly well known may be mentioned A. Chamæjasme (the Bastard Jasmine), A. earnea, and A. laetca, the latter being particularly pleasing when growing in tufts on the rockery, and bearing its pretty star-like white flowers in profusion. One, however, that is not too commonly



Fig. 1.—Androsace lanuginosa.

seen is the Himalayan species represented in the woodcut (fig. 1)—namely, A. lanuginosa, the Woolly-leaved Androsace. This, though also dwarf, is not quite so diminutive as some of the other species, but it varies somewhat according to its position—that is to say, whether it be grown on the rockery or in a border, as is sometimes done with good results. It produces its soft pink flowers, which have a yellow centre, in close umbels, and these present an agreeable contrast with the white woolly leaves. The plant also succeeds under culture in pots, but this is not generally advisable except to maintain the stock where there is a danger of losing the older plants.

CANTERBURY ROSE SHOW.

JUNE 30TH.

IF Farningham can boast of the picturesque surroundings of its Rose Show, Canterbury may equally boast that it has one of the very best rooms in which a Rose Show can possibly be held. Lighted almost entirely (except the end windows) from above, giving therefore to no one exhibitor above another the advantage of a good light of which his neighbour is deprived, and affording ample freedom of circulation as the stands are arranged along the sides of the room against the wall, it leaves nothing to be desired in this respect; and possessing, as the old city does, some most enthusiastic rosarians, it is no wonder that it has so soon acquired a name for itself, and stands out as a successful instance of what energy can do.

A glance round the room before the judging commenced made it evident, that although many of the stands were of great excellence, yet on the whole the Roses were not quite equal to those of last year. The Rev. H. B. Biron was there as usual in good form; and had it not been that it was so arranged that the medals of the National Rose Society could not come into the classes in which he competed, one at least of them would have fallen to his share, as the stand for

which he gained the cup given by Mr. Hardy was unquestionably the best box exhibited in the local classes, if not the best box in the Show. In the amateurs' class for twenty-four blooms the first prize was gained by Mr. Brown, gardener to A. J. Waterlow, Esq., for a fine stand of blooms, amongst which were La France, Henri Ledechaux, a fine bloom; Eugène Furst, Fisher Holmes, Annie Wood, Léon Renault, Charles Lefebvre, Baronne de Rothschild, Madame Charles Crapelet, Marie Baumann, Duke of Connaught, Charles Darwin, Marie Rady, Etienne Levet, and Madame Thérèse Joigneux. Mr. John Hollingworth was second with a good stand, but the flowers had opened too much; amongst them was a good bloom of the lovely Madame Gabriel Luizet, Thos. Mills, Senateur Vaisse, Duke of Edinburgh, &c. In the class for twelve Teas Mr. Waterlow and Mr. Mitchell were equal first. Mr. Mitchell's flowers were Adam, Souvenir de M. Pernet, Madame Joseph Halphin, Devonensis, Josephine Malton, Adrienne Christophle, Souvenir d'un Ami, Duc de Magenta, Jean Ducher, Catherine Mermet, Souvenir de Paul Neyron, and Maréchal Niel. Mr. Waterlow had Gloire de Dijon, Souvenir d'un Ami, Devonensis, Marie Guillot, Madame Camille, Madame Hippolyte Jamain, Marie Van Houtte, and Madame Nabonnand.

In the class for eighteen Mr. J. Wakeley of Rainham was first with an excellent box, containing fine blooms amongst others of P. Arthur, Ferdinand de Lesseps, Duc de Wellington, Abel Carrière, Fisher Holmes, Marquise de Castellane, and Napoleon III. Mr. G. Mount, Harbledon, was a good second; his most noticeable blooms being Louis Van Houtte, Penelope Mayo, Alfred Colomb, and La France. Capt. Lambert was a good third. In the class for twelve Mr. Wakeley was first with an excellent box, which gained him also the silver medal of the National Rose Society for the best box in the first five classes. It contained Duke of Edinburgh, Marie Baumann, Duchess of Vallombrosa, Exposition de Brie, Duke of Wellington, Senateur Vaisse, a grand bloom; Etienne Levet, and Lord Macaulay. In Class T, for twelve, the Rev. H. B. Biron had a splendid box, containing a grand bloom of Eugène Furst, Penelope Mayo, Xavier Olibo, Etienne Levet, Capitaine Christy, François Michelon, very fine; Marie Baumann, fresh and lovely; Marie Cointet, Star of Waltham, and Dr. André. Capt. Knight of Bobburg near Sittingbourne had a good box of twelve Indicas and six H.P.'s, comprising La France, Hippolyte Jamain, Capt. Christy, Sultan of Zanzibar, Alba Rosea, Catherine Mermet, Cheshunt Hybrid, Marie Baumann, and Marie Van Houtte. Mr. George Mount had an excellent box in the same class: amongst his flowers was one of the finest blooms of Marie Guillot I have seen. In the class for six of a sort Mr. H. R. Peckham and Mr. G. T. Peckham were equal first; the one with a fine box of Maréchal Niel, the other with a very good one of Marie Baumann. In the class for twelve Teas Capt. Knight was first with a box containing some examples of vigorous growth, but a little too coarse and overblown; while for six Teas Mr. G. Mount had a very pretty little box of Marie Guillot, Catherine Mermet, Maréchal Niel, Souvenir d'un Ami, Niphetos and Marie Van Houtte.

I have thus briefly noticed the chief stands in the Show. They manifested good culture and careful management, and showed very clearly how such an exhibition of this kind tends to promote Rose-growing. The bronze medal of the National Rose Society for the best bloom in the Show was awarded to Mrs. Peckham for a fine example of Alfred Colomb.

The stands for table decorations of Roses and Ferns were certainly not equal to last year. Mrs. Biron, however, took her accustomed place as gainer of the first prize. The Show was eminently successful, and too much praise cannot be given to the Rev. H. B. Biron and Mr. Mount for the courteous and kind manner in which they met the wants of the exhibitors.—D., Deal.

UNHEATED STRUCTURES FOR FRUIT TREES.

I AM glad to see in the pages of your valuable Journal that cool and cheap structures are advocated for fruit culture. All are not able to have their houses heated, though they might have cool houses, which if properly managed would be very profitable. We have a large unheated orchard house here, and could not wish for better crops of Peaches, Figs, and Nectarines than are gathered annually, and the climate in this part of Lincolnshire is very treacherous during the early spring months.

Of late years Peach trees on walls outside have not succeeded. In fact, the trees in most cases are dead or nearly so, while those protected with lights are generally satisfactory. Skilful management is wanted, and with care good crops of fruit can be obtained from trees in cool structures in most localities. A question I have often put to gardeners is—What is your reason for preferring a heated orchard house to a cool one? The answer generally is, "I find it so useful for holding the bedding plants in the winter." Very seldom do I hear that it is of any benefit to the trees. I am inclined to think it detrimental.—LEADENHAM.

LEEDS HORTICULTURAL SOCIETY.

ALMANACK makers might win a reputation for weather wisdom if they could obtain early information as to the fixture of the summer Show of this Society, and then announce that thunder might be

expected about noon, and rain, more or less heavy, on one or all of the days during which the Exhibition would be open. During the last few years large, varied, and splendid displays have been provided in the Horticultural Gardens; but the rain has been incessant, and the results almost disastrous. This year thunder and some rain occurred on the opening day, and a threatening drizzle for a great portion of the second day; yet notwithstanding on the first, or half-crown day, upwards of £300 was taken at the gates. The total amount taken during the three days exceeded £600, or about a third more than the returns last year. All must hope that this will enable the Committee to meet all demands and start on a more substantial basis, as they have had to contend with extraordinary obstacles, and by their perseverance under difficulties the directorate of this Society certainly deserves success.

The Exhibition, which opened on the 29th ult. and continued for three days, although not in all the sections quite equal to that of last year, was yet, considering the conditions under which it was held, a display of considerable magnitude, and in most of the departments of great excellence. There was a slight falling-off in the specimen plants and the effect groups, yet local competitors staged most creditably, while Pelargoniums were splendid, Orchids much better than on previous occasions, and the display of fruit was highly satisfactory. The large plant tent, upwards of 400 feet long, would have been well filled had not some exhibitors who had entered failed at the eleventh hour to fulfil their engagements, than which scarcely anything can be more disappointing to managers of shows.

The classes of this Show can only be referred to briefly, other reports pressing for a share of the space at disposal. In the open class for sixteen specimen plants Messrs. Cole & Son had the premier position with fine plants that have often been described; followed by Mr. Frankland, gardener to John Barran, Esq., M.P., with a most creditable collection, in which *Erica ventricosa* was splendid, and the other plants good. Mr. Tuke, gardener to G. Gelder, Esq., was placed first in the amateurs' class for six plants with admirable examples, *Ixora Williamsii* being of great excellence, and all the others fresh and good. Mr. Wright, gardener to Grosvenor Talbot, Esq., was second, also with good plants. For three plants Mr. Tuke was again an excellent first; Mr. Rollisson, gardener to Walter Bateman, Esq., Harrogate, second; and Mr. Winterbourne, gardener to F. Simpson, Esq., Weetwood, third. In the open class for six fine-foliaged plants Messrs. Cole, Winterbourne, and Conyers secured the prizes in the order named, all staging remarkably well, and the competition was very close. Ferns were also very fine, Messrs. Cole, Eastwood, gardener to F. W. Tetley, Esq., and Mrs. Smith, Headingly, being the successful competitors. Messrs. Ryland, Aughton, Ormskirk, and Goodchild, Chapeltown, were placed first and second respectively in the class for hardy Ferns, with good specimens.

GROUPS.—In the open class for a group arranged for effect in a space not exceeding 300 feet Mr. Simpson, New Lane, Selby, secured the first position, Mr. Frankland following. So close were these groups in merit that it was only after long examination that the Judges could make their awards. They were, however, unanimous, and were also fortified by the referee, Mr. Wm. Dean, that the bright and cheerful margin of Mr. Frankland's arrangement could not compensate for its heavy centre of formal specimen Fuchsias. Mr. Simpson's group lacked in brightness, but true taste was displayed in the arrangement, especially in bringing tall Palms to the front, especially at the corners, and forming at their base a pretty groundwork of small decorative plants; it was, in fact, the freedom and diversified character of this group that secured it the foremost position. In what is termed the 150 feet class for amateurs the Mayor's prize, a splendid timepiece, was well won by Mr. Hemming, gardener to H. Oxley, Esq. The arrangement was marked by a striking absence of packing and crowding, the variegated Yuccas, Dracænas, and Pandanus being dispersed to great advantage. Kalosanthes, very bright, imparted colour, and the margin was cheerful yet free. Following the principle on which the awards were granted—and it required some moral courage to do so in this case—Mr. Wright was adjudged the second prize because he had avoided packing and arranged the plants at his disposal to the best possible advantage. Mr. Tuke was placed third with a group which at the first glance was the most imposing of all. The plants were in excellent condition, and a good floral decorator could in ten minutes have disposed them so that the group would have been first instead of third. It was much too formal, and was deficient in diversity, freedom, and picturesque effect. The 100 feet groups were not satisfactory. These small arrangements can be rendered more satisfactory when formed in half circles, the side of a tent or building forming a background, than in the form of floral haycocks. Mrs. Smith and Messrs. J. W. Crawford and A. Harrison were the prizewinners.

ORCHIDS.—These were more numerous than on previous occasions, and formed a fine feature. For six plants in flower Mr. Mitchell, gardener to Dr. Ainsworth, Broughton, Manchester, was an easy first. *Aerides Lobbi Ainsworthianum* was very fine with three rich spikes, one of them with four branchlets; *A. Veitchii*, *A. Larpentæ*, *Phalænopsis grandiflora*, *Odontoglossum crispum*, and *Cypripedium barbatum* were also in excellent condition. Mr. Rollisson was second, Mr. J. Sunly, Halifax, third, an extra prize being awarded to Mr. Frankland. For three plants Dr. Ainsworth was again to the fore with a charming example of *Vanda Bensoni*, a fine form of *Cattleya Mendelli*, and *Dendrobium formosum*. For a single specimen Mr. Hemming

was first with *Cypripedium barbatum* with about one hundred fine flowers, the growth also being vigorous. Mr. Dale, gardener to Alderman Lapton, Anerley Lodge, was second with *Stanhopea tigrina* with six grand flowers; and Dr. Ainsworth third with *Odontoglossum Rossi*, a fine plant of this pretty miniature, but only half the flowers were expanded.

Pelargoniums were splendid. In the open classes for Show, also for French, varieties the prizes went to Messrs. Rylance, Lazenby, and May, the specimens of the last-named exhibitor being smaller than the others, but densely flowered, vigorous, and fresh. Messrs. G. Winterbourne and Eastwood were the chief prizewinners in the corresponding amateurs' class. Messrs. Pybus and G. and W. Winterbourne had the prizes for Zonals with grand specimens, Mr. Rylance being first with Fancies and Mr. Eastwood with double-flowered Zonals. Messrs. Pybus and May secured the prizes for Roses in pots with dwarf examples and good blooms. Fuchsias were good, Mr. Eastwood taking the chief prize with well-flowered pyramids. Gloxinias were excellent from Mr. W. Winterbourne, Mrs. Smith, and Mr. Eastwood. Tuberous Begonias were very poor, and Calceolarias fading. Bedding plants in pans from Messrs. A. Simpson & Son and Lazenby were excellent, but the group of these plants arranged for effect appeared to be quite misapprehended, and it is a question if the Judges did not err in awarding the prizes. This class can well be cancelled. Mr. Hartly had the chief prize for twelve Show Pansies in pots, and Mr. Mann, Shadwell, for twelve Fancies.

Cut Flowers.—Miss Tatham's prize for a group of natural flowers in stand for the dinner table was won by Messrs. Jones & Son, Shrewsbury; the best wedding bouquet was from Mr. Rylance, and best ball bouquet—by far the best bouquet in the Show—came from Mr. Featherstone. Messrs. Cranston secured the chief prizes for Roses in the open class, followed rather closely by Mr. May, and Mr. Jowitt in the amateurs'. Fine stands of Pansies were shown, the chief prizes going to the exhibitors who were successful for plants in pots. Mr. Faulkner, gardener to F. R. Leyland, Esq., Woolton Hall, Liverpool, had the premier prize for stove and greenhouse flowers with a splendid stand, followed by Mr. Taylor, Apperley, and Mr. Rollison.

FRUIT.—This was an excellent display, and the competition was very close indeed in many of the classes. For four dishes the special prize was won by a point by Mr. Clayton, The Gardens, Grimstone Park, Tadcaster, with a good Pine, Black Hamburgh Grapes, Peaches, and Nectarines. Mr. Wallis, The Gardens, Kirby Hall, York, following; fine Chasselas Musqué Grapes almost or quite equalling in merit Mr. Clayton's Pine. In the class for six dishes Mr. Faulkner staged an excellent premier collection including black and white Grapes, Pine, Melon, Peaches, and Nectarines, all very good; Messrs. Clayton and Wallis followed closely. In the open class for four dishes Mr. Faulkner was again first; Mr. Mann, St. Vincent's, Grantham, second; and Mr. Clayton third. Mr. Wallis was an excellent first for black and white Grapes; and Mr. Wood, gardener to J. Padgett, Esq., Tranfield, Guiseley, second. For a single dish of black Grapes the prizes went to Mr. Walker, gardener to Mrs. Taylor, Mr. Wood, and Mr. Hickson, Clifford. The black Grapes, though generally good, were more or less deficient in colour. Mrs. Smith was first with white Grapes (Muscats); Mr. Wallis being second with Chasselas Musqué; and Mr. Taylor, gardener to Sir H. Ripley, third with Buckland Sweetwater. Mr. Clayton secured the first prize for a Pine; Mr. Crowe, Bradford, for Peaches; Mr. Mann for Nectarines; Mr. Frankland for Figs; Mr. Weatherill, gardener to Mrs. Norton, Sandal, Wakefield, for Melons, with the variety "Best of All;" Mr. Taylor for Cherries; and Messrs. A. Simpson & Son for Strawberries; and Mr. Mann for Cucumbers. In most of the above classes the competition was good, and many dishes of excellent quality were staged than can be noticed in the outline report of a generally excellent show.

Messrs. Dickson & Sons, Newton Nurseries, Chester, were highly commended for Pæonies. Mr. Hartley, Headingley, highly commended for a miscellaneous collection of cut flowers; and Mr. Wood, Woodville, Kirkstall, very highly commended for a most meritorious collection of alpine plants.

THE ANTLER MOTH.

AN appearance of the larva of the antler moth (*Charæa graminis*) in excessive numbers has afforded during June an entomological sensation to the many persons who are always on the outlook for something novel or startling, thus forming one precursor of the "big Gooseberry" season that sets in amongst our journals when parliamentary and general news begins to get scarce. As is also usual, the ordinary paragraphist has been led thereby to make conspicuous the meagreness of his knowledge in reference to natural history facts which are tolerably prominent.

Early information upon the subject was obligingly sent to this Journal by a correspondent who had observed thousands of the caterpillars on Pendle Hill, where, however, occurring amongst wild grasses, and near mixed herbage, it was at first doubtful what the species might prove. In a daily contemporary shortly after an account was published of the ravages committed by the caterpillars in the agricultural districts near Clitheroe. "The insects come in dense clouds, and the houses and country literally

swarm with them; they eat up the grass, and almost everything green." Subsequently there was noticed an extensive migration of these caterpillars in the direction of Chipping. We naturally conclude that there is some exaggeration in this and similar newspaper reports. Doubtless there is; but Mr. J. B. Hodgkinson of Preston, a well-known entomologist, writing to an entomological journal, grants that there is something extraordinary about the case, especially as he had lived two years previously in the district infested and only saw a few stragglers. He remarks that a friend of his took shelter from a shower of rain in a quarry, and there perceived some of the caterpillars in question dropping over a ledge of rock into a hole which chanced to be beneath. "Such were the immense numbers that the hole, from which they could not extricate themselves, had the appearance of a seething caldron of living creatures."

The antler moth (*Charæa graminis*) belongs to the Noctuid group of our British moths, and, like many in that group, is not easy of recognition from a verbal description; it is nearly related to the familiar Cabbage moth (*Mamestra Brassicæ*), though not similar in its markings to that species. The caterpillar is smooth and greyish brown, with the head rather darker; there are three longitudinal yellowish stripes. Immediately behind the head is a small horny plate, and another on the last segment, indicating that the caterpillar is adapted for a mode of life more or less subterranean. It is during August and September that the moths emerge, and, by the testimony of Mr. Wailes and others, we are given to understand that their favourite time of flight is about 8 A.M. Doubtless the eggs are deposited during those months, and (probably) the young brood hatches out soon after, hibernates, and feeds up in the spring and summer, when only the caterpillars have been noticed by the ravages they commit.

The Swedish naturalist Linnæus referred to *C. graminis* as one of the specially injurious insects of his native land. In some years the greater part of the crop of hay has been destroyed by it, though it has not been so troublesome of late. In England the species had not shown a particular liking for cultivated lands, but had several times been noticed in extensive commons, or the slopes of mountains. Its recent proceedings, however, are more alarming. An observer who had noticed many of the caterpillars between Skiddaw and Keswick fifty years ago found that they were attended by large flocks of rooks, which preyed upon them all day. As yet there have been few instances of the occurrence of the species in the south of England. Upon and near Pendle Hill, in June of this year, it would seem that the caterpillars had been subject to the attacks of a parasite from the shrivelled state of some specimens sent to us. It was also reported that numbers had been trodden under foot, hence it might be presumed that there at least the caterpillars did not confine their attacks to the roots of grasses. We may infer that, in the case of fields found to be infested by these caterpillars, there can be no remedial process except the severe one of the destruction of both grass and caterpillars by turning over the soil, and the application of diluted paraffin, gas-lime, or some other solution fatal to insect life, or the surface ought to be burnt.—J. R. S. C.

RICHMOND HORTICULTURAL EXHIBITION.

JUNE 30TH.

THAT important factor in the success of flower shows, the weather, could not have been more favourable than it was on Thursday last, when the above-named vigorous and prosperous Society held their seventh annual Exhibition. The usual picturesque site—namely, the Old Deer Park, was chosen, and the best evidence of the continued and increasing popularity of the Show was the very large attendance of visitors. As regards the exhibits there was a noticeable falling-off in numbers in some classes, but for general good quality and freshness the plants have rarely been excelled at a local exhibition. Four large tents were occupied, one with plants, a second with cut flowers and table decorations, a third with fruit and vegetables, and the fourth with cottagers' productions.

STOVE AND GREENHOUSE PLANTS.—These were not represented by many collections, but the specimens staged were in healthy condition, some flowering remarkably well. The principal class was for nine plants, and in that Messrs. Jackson & Son, Kingston, carried off the chief prize with good examples, similar to those which have already figured conspicuously at many of the metropolitan shows. *Erica ventricosa* Bothwelliana, *Dracophyllum gracile*, and *Clerodendron Balfourianum*, were the most noticeable, being evenly trained and flowering freely. The second position was accorded to J. H. Hinnell, gardener to A. Davis, Esq., Anglesea House, Surbiton, for a highly creditable collection, in which a globular-trained example of *Phenocoma prolifera* Barnesi was especially noteworthy for its health and the number of flowers it bore. Very rarely is a better specimen of this plant seen, for it is by no means easy to preserve it in satisfactory condition, especially when of a large size. Alla-

manda Hendersoni and Statice profusa were also well shown by the same exhibitor. Messrs. Peed & Son of the Norbury Nurseries, secured the third prize for smaller but fairly good plants. In the Society's district class for six specimens the competition was limited to Mr. Crafter, gardener to Miss Finch, Woodlands, Kingston Hill, and Mr. Attrill, gardener to C. J. Freake, Esq., Bank Grove, Kingston, who were accorded equal prizes.

Pelargoniums.—A pretty though not an extensive display was contributed in the classes devoted to these plants. For six Show Pelargoniums Mr. Wiggins, gardener to H. Little, Esq., Hillingdon Place, Uxbridge, was the principal exhibitor, securing the premier award with the plants which gained similar honours at South Kensington a day or two previously. Mr. Croxford, gardener to Mrs. Dunnage, Albury House, Surbiton, was a close second with neat plants flowering freely; and Mr. Wells, gardener to C. W. Selwyn, Esq., Selwyn Court, Richmond, was placed third with healthy specimens, but not bearing very numerous flowers. Fancy varieties were not very well represented; the principal prizes were taken by Messrs. Attrill, Crafter, Wells, and Bond, gardener to Miss Evans, Beech House, New Hampton, in the order named for moderately good plants.

Fuchsias.—These were sufficiently numerous to produce an important part of the display in the large marquee devoted to the plant classes. They were mostly, too, in very satisfactory condition both as regards healthy growth and floriferousness. The plants were not in any case excessively large, but compact vigorous growth characterised the majority. For nine specimens Messrs. Crafter and Wells, and Mr. Morrell, gardener to J. S. Rutter, Esq., The Cedars, Richmond, were the prizetakers, all staging good examples varying chiefly in respect to regularity of outline, flowers being numerous on nearly all the specimens. In the district class for six Messrs. Bond, Morrell, and Wells contributed collections of similar quality to those in the open class.

Begonias and Caladiums.—Fine-foliage varieties of Begonias were represented by two very creditable collections, the chief position being accorded to Mr. Morrell for healthy examples of Queen Victoria, Sambo, and Madame Butt among others of less note. The leaves were of considerable size and the colours well developed. Mr. Sallows, gardener to J. J. Flaek, Esq., Heddingham House, followed closely with similar specimens, also well grown. Two collections of six Caladiums were staged by Mr. D. East, gardener to F. Wigan, Esq., Clare Town, East Sheen, very deservedly securing the chief prize for fine specimens in vigorous health, and bearing well-developed and brightly coloured foliage. The pots, too, were not out of proportion to the size of specimens as is frequently the case with such plants to their great disadvantage in point of elegance. Mr. Wells followed with much smaller examples but in fair condition.

FINE-FOLIAGE PLANTS.—These were not quite so numerous as on some previous occasions, especially as regards the general kinds ranked under that head, such as Crotons, Draenas, &c.; but Ferns were strongly represented, and in several of the collections admirable specimens were staged. The two special prizes offered by Mr. F. R. Kinghorn for nine fine-foliage plants were secured by Mr. Bates, gardener to J. E. Meek, Esq., Poulett Lodge, Twickenham, and Mr. Prickett, gardener to Dr. Francis, Manor House, Richmond, in that order. The first-named had very good examples of Yucca aloifolia, Pandanus Veitchii, and Dracena Baptisti. Mr. Prickett's best plants were Alocasia macrorrhiza and Maranta zebrina.

Ferns.—The chief class was for eight exotic Ferns, open to all exhibitors. Mr. Hudson, gardener to H. J. Atkinson, Esq., Gunnersbury House, Acton, obtained the principal honours with a most creditable collection, which would have rendered him a formidable competitor at some of the larger shows this year. The most noticeable were two handsome specimens of Gleichenias—G. Mendelli and G. flabellata—each over 6 feet in diameter, well and evenly trained in a globular form, and especially remarkable for the fresh green appearance of the well-developed fronds. A fine piece of the dwarf Davallia bullata was also shown in first-rate condition; Thamnopteris australasica, Adiantum cardiochlamna, and A. farleyense being similarly good. Mr. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, followed closely with very healthy examples of Microlepia hirta cristata, Davallia Mooreana, Dicksonia squarrosa, Phlebodium aureum, and Gleichenia dichotoma. Mr. Morrell was a good third with smaller but vigorous plants. In the district class for six Mr. East was first, staging good plants, Cyathea dealbata being particularly fine; Messrs. Morrell and Prickett taking the remaining prizes in that order. Hardy Ferns were numerous and fresh, Messrs. Prickett, Morrell, and Crafter being the prizetakers.

Palms.—Special prizes were offered by Mr. H. Herbst, Kew Nursery, Richmond, for six Palms, distinct varieties, in pots not exceeding 12 inches in diameter. Three collections were staged, Mr. Bates securing chief honours for half a dozen very even and graceful specimens of Thrinax elegans, Latania rubra, Kentia Fosteriana, Cocos Weddelliana, Livistona rotundifolia, and Hyophorbe Verschaffelti. Messrs. Hudson and Prickett followed closely, the former having a pretty example of Kentia australis.

Groups.—The four groups staged in competition for the £5, £4, and £3, offered as first, second, and third prizes respectively in the class for a group to occupy a space not exceeding 100 square feet, were arranged near the sides of the principal plant tent, and contributed greatly to the bright effect. With the exception of the fourth they

were all of a similar style, though of very different degrees of merit, and it is gratifying to see some general departure from the too common banked-up system prevailing in the arrangement of groups. Mr. Hudson was worthily placed first with one of his most tasteful groups—light, elegant, and effective. The groundwork consisted chiefly of Adiantum cuneatum, among which appeared, informally disposed, small plants of Caladium argyrites, Gloxinias, Lilies, and Begonias, a few taller Palms being scattered about, and a noble specimen for the centre. There was not the slightest approach to crowding, and yet every part was well filled, a most satisfactory softness and evenness pervading the group as a whole. Messrs. Hooper and Co., Covent Garden, were second with a slightly heavier arrangement, but by no means devoid of beauty; Mr. W. Brown, St. Mary's Grove Nursery, Richmond, following with a similar pleasing group. Mr. Munro, gardener to Lady Chichester, Cambridge House, being fourth with a collection of good plants, but rather too formally disposed.

Cut Flowers.—Roses were the most numerous represented in these classes, but, owing no doubt to many exhibitors reserving their strength for the National Rose Show at the Crystal Palace, the quality generally was not quite up to the usual standard. In the nurserymen's class for thirty-six triplets Messrs. G. Paul & Son, Cheshunt, were the only exhibitors, being deservedly awarded the first prize for a bright collection. The same firm obtained a similar position with twenty-four triplets, followed by Mr. Rumsey of Waltham Cross. In the amateurs' class for twenty-four single trusses Mr. L. Stephenson, gardener to T. Bull, Esq., Red Holm, Teddington, was first with a good selection; Mr. Moorman, gardener to the Misses Christy, Coombe Bank, Kingston-on-Thames, following closely. Indeed there were very few points difference in the quality of these two exhibits. Mr. Hudson was third with fair blooms. In the other classes the chief prizetakers were Mr. E. Mawley, Addiscombe; Mr. E. Berry, gardener to the Countess of Leven; and J. Wigan, Esq., Cromwell House, Mortlake; with Messrs. Lambert, Bates, and Lake.

Bouquets, buttonholes, and vases were very numerous. Mrs. Hudson The Gardens, Gunnersbury House, was especially successful with the last-named, contributing similar tasteful stands to those which have obtained honours in two previous years. Mr. W. Brown also exhibited well, and many others contributed in the several classes.

FRUIT.—Though not of remarkable quality this was fairly shown, and the competition in the Grape classes was unusually keen. The best collections of six dishes were shown by Mr. Fry and Mr. Davis, gardener to the Rev. L. Morris, the former having a good Queen Pine Apple. Black Grapes were of fair quality, Mr. Feist, gardener to R. T. Ashton, Esq., Mr. Fyffe, gardener to W. W. F. Diek, Esq., Thames Ditton House, and Messrs. Bates and Lake, being the chief exhibitors. Three bunches of Black Hamburgs from Mr. Bates were particularly well finished and of good size. White Grapes were contributed by Mr. Feist and Mr. Wagstaff, gardener to J. H. Blam, Esq., Firsleigh, Isleworth, in moderately good condition, but the majority were rather green. Messrs. Sutton & Sons' prizes for a brace of Melons were accorded to Mr. Morrell and Mr. Beckett, gardener to J. P. Currie, Esq., Sandown House, Esher; the former for Suttons' Hero of Bath, and the latter for Suttons' Hero of Lockinge. Messrs. G. Paul & Sons' prizes for two dishes of Strawberries to be judged by flavour were secured by Mr. Crocker, gardener to W. Rogester, Esq., Lawn Lodge, Isleworth, with Sir Joseph Paxton and Sir C. Napier; Mr. J. Wagstaff taking the second place with British Queen in the place of Sir C. Napier.

Vegetables were abundant, of first-rate quality in the majority of cases. The chief prizes were secured by Messrs. Waite, Munro, Beckett, Hughes, and Brown. Cucumbers were also numerous, especially in the classes provided by Messrs. Sutton & Sons and Messrs. Daniels Bros. The varieties selected for honours in the former being Tender and True and Duke of Connaught, and in the latter Daniel's Defiance.

Miscellaneous exhibits were very abundant, several very handsome groups being contributed. Mr. Little sent a handsome collection of Pelargoniums, the General Horticultural Company a group of choice plants, Messrs. Osborn & Son a collection of fine-foliage plants, Messrs. G. Paul & Son a group of small Roses in pots, Mr. Kinghorn an effective group, Messrs. Jackson & Son a collection of stove and greenhouse plants, and Messrs. Fromow & Son a group of miscellaneous plants, and Messrs. J. Laing & Co. a group of Tuberous Begonias.

TEMPERATURE IN VINERIES.

YOUR correspondents have explained how rigid are the rules as to temperature enforced by some Grape-growers. I will give an experience of the other extreme, where thermometers are altogether dispensed with and judgment alone depended on. I do not condemn thermometers, far from that; but it is only necessary in Britain to add artificial heat to equal the climate where the Grape grows naturally.

To ripen Grapes and to ripen the wood sufficiently to secure a successional crop unquestionably requires a certain amount of heat, and light, and air; but it does not require that the heat, and light, and air should be a gradual rise and fall. For illustration I will take Black Hamburg and Lady Downe's Grapes, these

being two of our most useful varieties, and the one not too particular as to conditions, and the other demanding close attention during the cracking and scalding period. In my small house of Black Hamburg, when I grow a few bunches for exhibition, I never have a thermometer, it being quite unnecessary; but during the above periods, or rather that of "scalding," to let Lady Downe's be in a heat of over 88° or below 70° is to court scalding, as also is giving a heavy watering and at the same time pinching. In nature, and where the Vine grows naturally, we have extreme fluctuations, or perhaps, more correctly, sudden fluctuations of temperature; and though desirable to avoid these, yet there is sufficient provision in the constitution of the Vine generally to withstand the same rate of fluctuations as we have where the Vine grows naturally.

In my vinery I grow fifteen varieties, and but for having Lady Downe's of the number I should not be particular whether my thermometer was inside or outside the house; in fact, since

winter up to the last day of June there was no thermometer in the house, and I have only taken one in now to save this troublesome Grape. In my other house, which is 212 feet long, I have Grapes in the front and Peaches along the back, and Nectarines, Figs, Apples, Pears, Tomatoes, Geraniums, and Fuchsias. All the fruit trees are laden, and are in vigorous health, and this year I have never had a thermometer in the house. This is my experience in fruit-growing, and if there be those who doubt, I say to them, Pray come and see.—JOSEPH WITHERSPOON, *Red Rose Vinery, Chester-le-Street.*

ARALIA SPINULOSA.

MANY diverse forms of Aralia are grown, all more or less useful; some delicate and elegant, such as the well-known and highly valued *A. Veitchii* and *A. gracillima*. Others, again, are of bold imposing habit, being suited for conservatory decoration, and



Fig. 2.—ARALIA SPINULOSA.

a few figure conspicuously in the subtropical garden. The one shown in the annexed woodcut is very distinct from the majority, but not less attractive when well grown, to insure which a temperature intermediate between a stove and a greenhouse seems to be required, though it grows freely in a stove. A compost of good light turfy loam with a little peat or leaf soil and sand suits it well, liberal supplies of water being needed when the plant is growing. It is one of the novelties being sent out this year by Mr. B. S. Williams, Upper Holloway, to whom we are indebted for the figure. He gives the following description of it—"The leaves are pinnate, alternate, with the pinnae ovate acuminate, of a dark green colour, margined with little reddish-crimson spines or prickles. The stem and petioles are spotted and suffused with crimson. When in the young state this plant will form a pleasing

object of decoration for the dinner-table, or when large a suitable subject for exhibition purposes."

FARNINGHAM ROSE AND HORTICULTURAL SHOW.

JUNE 29TH.

UNDER the brightest of skies and with a pleasant cool air to temper the heat, the third Exhibition of this Society opened under most favourable auspices, and nothing could be more picturesque than its surroundings. The tents were pitched in a meadow by the side of the Darent opposite the "Lion," a hostelry so dear to all lovers of the gentle craft (why striking a hook into a poor fish could ever have been dignified by this term I know not), and no one who loves quiet pastoral scenery but must have felt that they were in the midst of an exceptionally good specimen of it at Farningham. The exhibits

were contained in three tents. In two of these were to be found the collections of stove and greenhouse plants, Ferns, Orchids, table arrangements, and the miscellaneous collections which are generally found in a truly good exhibition such as this. Very beautiful plants, both flowering and fine-foliaged, were contributed by Messrs. Umfreville, Spottiswoode, Dunbar, Mildmay, Sir William Hart Dyke, and others, and reflected great credit on the cultural skill of the various gardeners who have charge of those establishments. The arrangement for a table by Mrs. Seale of Sevenoaks, whose practised hand was very evident, was very beautiful. White Water Lilies and the Ox-eye Daisy formed no small part of it, and, as may be readily imagined, its simplicity was its great charm. The three stands for a table exhibited by ladies displayed some admirable examples of good taste; but the chief point of attraction at the Exhibition, and that which will most interest the readers of the Journal, was the Rose tent. The first prize for thirty-six was awarded to Mr. B. R. Cant of Colchester with a box of blooms, which, although not perhaps quite up to his usual excellence, contained some fine Roses. Amongst them were Duke of Edinburgh, Hippolyte Jamain, Marie Van Houtte, Madame Lacharme, Duchess of Vallombrosa, Maurice Bernardin, Charles Lefebvre, Devoniensis, Rubens, Maréchal Niel, Madame C. Maurice, a dark Rose, apparently of good quality; Marquise de Castellane, and Louis Van Houtte. Mr. Wakeley of Rainham was awarded the second prize; his box containing amongst others La France, Thomas Mills, Marquise de Castellane, Duke of Wellington, Ferdinand de Lesseps, Dr. Andry, Marie Finger, and Abel Carrière. Messrs. George Bunyard & Co. of Maidstone were third, and Messrs. Kinmont and Kidd of Canterbury fourth. Mr. Cant also exhibited an excellent box of twelve Teas, consisting of Rêve d'Or, Niphetos, Anna Ollivier, Rubens, Madame Caroline Kuster, Catherine Mermet, Marie Van Houtte, La Boule d'Or, Maréchal Niel, Madame Willermoz, Devoniensis, and Moiré. The first prize for twenty-four and the silver medal of the National Rose Society was awarded to J. F. Burnaby Atkins, Esq., of Halstead Place, Sevenoaks, for an excellent box containing Charles Lefebvre, François Michelin, Ferdinand de Lesseps, Countess of Oxford, Fisher Holmes, John Hopper, Marie Baumann, &c. The second was won by the Earl of Stanhope, the best of whose Roses were Camille de Rohan, Maréchal Niel, Beauty of Waltham, and Duchesse de Vallombrosa. The first prize for the best box of twelve and the bronze medal of the National Rose Society was awarded to Frank Burnside, Esq., of Farningham, the indefatigable President of the Rose Society, containing amongst others Etienne Levet, A. K. Williams, Duke of Edinburgh, Etienne Dupuy, Maréchal Niel, Marie Baumann, François Michelin, Horace Vernet, and Rêve d'Or. The second prize was awarded to the Rev. J. M. Fuller, in whose stand were capital examples of Dr. André, Louis Van Houtte, Devoniensis, and Marie Finger. For the best box of twelve blooms of any Rose Mr. Burnaby Atkins was again first with a fine box of La France, and Mr. Cant second with a very beautiful box of Madame Lacharme, very pure in colour. Mr. Burnaby Atkins was also first in the class for six blooms with a neat box of Duke of Edinburgh. In the class for six Teas Mr. J. Wakeley was first with Souvenir d'un Ami, Celine Forestier, Niphetos, Comtesse de Nadaillac. Dr. Tucker and Dr. Ashurst also exhibited good Roses.

The experience that has been gained in former exhibitions brought its recompense in the present one. All the arrangements were excellent; and although the hour for the Judges to commence was somewhat delayed yet all went smoothly. The excellent Secretary, Mr. Burnside, had provided for all contingencies; and in this he was ably seconded by Mr. Hall, who, although a successful exhibitor in former years, did not compete this season; and the consequence was, that although there was not sufficient space for all the exhibits everything went smoothly, and satisfaction was given both to exhibitors and the public, and this spirited Little Society may hope for a long lease of usefulness and pleasure.—D., Deal.



MR. THOMAS NICOL sends the following upon CEDRUS DEODARA:—"The review of 'A Manual of the Coniferae,' in the Journal of the 30th ult., mentions the Cedrus Deodara at Dropmore, and refers to the introduction of this valuable Conifer by the Hon. W. Leslie Melville. I have heard the story of the introduction of the seeds as given in the Journal many years ago. The trees at Melville House in Fife are magnificent specimens, and not less interesting and stately examples are growing thrivingly in the flower garden in front of Kingsdale House, near Kennoway, also in Fife. Kingsdale at one time belonged to the Leslie-Melville family. These Deodars are admired by all visitors to Kingsdale. They are adorned with lusty outspreading branches to the

ground, and stand the severest winters well. Their trunks are of considerable thickness, and extend rapidly."

— THE same correspondent, referring to the DESTRUCTION OF CABBAGES IN FIFESHIRE, observes—"In almost every district of Fife the Brassica tribes are infested by a maggot which devours the fibres and root stem of Cabbages, Borecole, Cauliflower, Broccoli, Brussels Sprouts, and Savoys. The plants wither away, and are removed from the ground by the slightest touch. The roots are blackened by being devoured by the insects, which are white, and literally cover the underground stems. Several remedies have been applied, but they have mostly been too late in being adopted to prove effective."

— MR. R. P. BROTHERSTON sends us a very fine spike of that showy and useful Orchid EPIDENDRUM VITELLINUM, which had over a dozen expanded flowers of unusual size, and with the rich orange tint characterising the species well developed. It is quite equal to the variety known as E. vitellinum majus both in size and colour, and the plant producing it has evidently been under the care of a skilful cultivator. The flowers of this Orchid are admirably adapted for bouquets and buttonholes when wired singly. We recently noticed some very tasteful examples of its utility in this respect in Covent Garden, and a number of buttonholes in which the flowers were freely employed in combination with other Orchids and Forget-me-nots attracted much attention at one of the floral exhibitions a few weeks since. The same correspondent also sends blooms of seedling Fancy Pansies, many being of excellent quality.

— "A READER of the Journal for twenty years" sends the following description of A NOVEL WAGER in the vale of Evesham—"There has been for some years a certain amount of rivalry between the market gardeners of Pershore and Evesham as to the size and quality of the fruits and vegetables grown in the two districts. One of the frequent arguments on this point led last week to a friendly bet of £5 between Mr. Jas. Cosnell, The Hurst, Pershore, and Mr. Edwin Grove of Evesham, as to which could pick a pot of Crown Bob Gooseberries 72 lbs. in weight with the smallest number of berries. The trial came off on Wednesday last, Mr. Jas. Cosnell winning by no less than 420 berries, the numbers being—Cosnell, 2890; Groves, 3310."

— AN illustrated work on Orchids, entitled the "ORCHID ALBUM," is announced to be issued monthly. It will be conducted by Messrs. Robert Warner and B. S. Williams, both well-known authorities upon this beautiful and peculiar order of plants. The botanical descriptions are to be contributed by Mr. Thomas Moore, and the coloured plates will be the work of Mr. J. N. Fitch. An interesting, instructive, and accurate production may be confidently expected, and it will no doubt be cordially welcomed by Orchid growers generally.

— WE cite the following from an American paper on PREPARING RAISINS IN CALIFORNIA:—"California seems to be the land of fruits, so varied are the products of her soil in this respect. The vast quantity of Grapes produced has naturally led to the making of raisins. The process varies somewhat in different localities. In Mr. Blowers' vineyard, Yolo county, the Grapes are allowed to remain on the Vine until of a golden colour and translucent. Then they are picked and put on wooden trays 2 by 3 feet in size, placed between the rows, sloping to the sun. When half dried they are turned by putting a tray on the top, and by inverting them both are transferred to the new tray. When the Grapes lose their ashy appearance, and after removing the green ones, the rest are put into large sweat-boxes, placing sheets of paper between every 25 lbs. of raisins. They are left there for two weeks, when the stems are tough and the raisins soft. The packing follows, in which iron

or steel packing frames are used, the raisins being assorted, weighed, inspected, and made presentable."

— WE have received from Messrs. Daniels Brothers, Norwich, some very fine SWEET-WILLIAMS, representing numerous rich and delicate colours, the flowers being large, of good form, and the trusses full. One variety with pure white flowers was particularly noteworthy, being of fine substance. Among the others the following colours were excellent—pink of several shades, mottled or plain, the margins being in some cases neatly fringed; broad or narrow crimson zones with a clearly defined white edge; very rich crimson; deep maroon; delicate pink zone and white margin. They indicate a very satisfactory strain.

— IN reference to "L. J. K.'s" inquiry respecting PELARGONIUM-FLOWERED PANSIES, we are informed that some three or four years ago an engraving of a Pelargonium was published in one of our first nurserymen's catalogues, and by an inadvertence it was referred to in the letterpress of the catalogue as a Pansy. Judging, therefore, by the engraving and description in the catalogue, the firm had for sale a Pansy with all the characteristics of a Pelargonium. The mistake was speedily rectified, and this error possibly gave rise to a notion that there really was a race of Pelargonium-flowered Pansies.

— A DUBLIN correspondent sends the following, and desires to know if any other readers of the Journal have observed similar peculiarities—"A large plant of HEDYCHIUM GARDNERIANUM in bloom has stood on a table in my drawing-room for ten days past. Aspect of room E., S., and W., therefore exposed to sun all day. The plant constantly drips water from points of leaves, so much so that a cloth protecting table has become partially saturated. Room is very dry, and many other specimen plants on other tables quite dry. Is this usual? It has interested me much."

— REFERRING to the DESTRUCTION OF WIREWORMS, "C. B." writes:—"Some years ago one of the agricultural journals recommended rape-cake dust for the extermination of wireworms. The rape-cake should be well pulverised and scattered broadcast over the land, and be well raked in. The wireworms eat it to repletion."

— A CORRESPONDENT recommends LYCHNIS FLOS-JOVIS as a fine old herbaceous plant for growing in shrubbery borders for affording flowers for cutting of a colour that he finds much appreciated by ladies—a clear yet soft pink. The plants, he says, will grow in almost any kind of soil, and the compact medium-sized trusses are admirably adapted for vase-decoration.

— THE ninth Exhibition of the DUNKELD ROSE AND PANSY SOCIETY is announced for Wednesday, July 13th, when prizes will be offered in twenty-six classes for Roses, Pansies, and wild flowers.

— THE "Prairie Farmer" states that "GRAFTING WAX FOR OUT-OF-DOOR WORK is best made as follows:—Rosin, five parts; beeswax, two parts; raw linseed oil, one and a half part; heat all together in a large kettle until it quits foaming, then pour out into cold water, and when cool enough work it by pulling like "toffee" until light in colour. It then may be used in mass and spread on with the fingers, or poured on to thin cloth and spread thin on it with a spatula, and the cloth then cut into narrow strips to bind around the graft; or the cloth may be cut into narrow strips and run through the wax when hot and wound into a ball. When top-grafting is done outdoors in the spring the temperature is generally very variable, and this wax at times will be found too hard or too soft, but it can be hardened by putting in more rosin or softened by putting in more oil. It can also be used by melting it and applying when liquid with a swab or spatula. It should not be applied very hot, but there is

little danger in this, for the tree will stand more heat than one would think. If applied thinly and quickly it may be put on smoking hot."

— THE annual FLOWER SERVICE AT BERKELEY CHAPEL was recently held, the Princess of Wales, with Princesses Louise Victoria and Maud of Wales, and the Duke and Duchess of Teck, with all their children being present. The young Princes and Princesses presented offerings of fruit and flowers. After a short but most beautiful service, including an address by the Rev. T. Teignmouth Shore, chaplain to the Queen, the fruits and flowers were sent to the various hospitals for sick children, the Princess of Wales, Princess Mary Duchess of Teck, and several ladies of rank taking them to the hospitals and distributing them there.

— THE Japanese, a contemporary remarks, are passionate lovers of gardening, which is carried on by all classes of society, from the great in palaces to the humblest workman. Gardening, as well as the art of making bouquets, is taught in schools; and nowhere perhaps are there so many gardens as in Japan. The plants cultivated in the small private gardens are mostly miniature representatives of great trees. All new species and varieties of garden flowers and trees are sold at high prices, and become known throughout the country with great rapidity.

LISMORE, CO. WATERFORD, HORTICULTURAL SHOW.

THE annual Exhibition here has more than a local fame—indeed it induced me to organise a party and to drive fifty miles to see it, and I was amply repaid. As the prize list and other local features would not have a general interest I merely refer to a few special points of importance, such as might strike a stranger, without referring to names. One name, however, cannot be passed over—the Patron of the Society, the Duke of Devonshire, under whose fostering care and his representative, Lismore, as well as this Society, have become models for imitation. To say this in such an exciting time is the highest praise. The Ballyain Gardens, belonging to the Duke, where the Show was held, is on the other side of the river (the Blackwater, the Rhine of Ireland) from that in which the Castle, the best preserved and finest of Ireland's great old feudal strongholds, is situated, and from these gardens the visitor looks down on the winding mazes of the river, with the dark tree-and-foliage background beyond, and on a smiling prospect that it would be difficult to rival. In the larger marquee the most striking feature was the Roses. The classes for thirty-six, twenty-four, eighteen, and twelve blooms were filled, some having as many as five competitors. This would have been worth seeing alone, when it must be remembered that the most competent Judge, himself a distinguished gentleman amateur, told me that in the stand of thirty-six he could not find an imperfect or faulty Rose, and the other stands deserved the same high meed of praise. I commenced with Etienne Levet to take the names of a dozen best, but gave it up, so difficult was it to decide. The explanation of the excellence was said to be, beside the attention and love for the Rose of the exhibitors and their gardeners, the suitability of the vale of the Blackwater and its soil for the Rose. Coleuses, stove and greenhouse plants, beside the fine collections of early vegetables, were special features. All visitors, especially strangers, could not fail to be struck with the energy and courtesy of the Hon. Secretary, W. Ross Baldwin, Esq., Roseville, Lismore, and his assistants. A fine collection of Roses, Begonias, Pelargoniums, and Petunias, not for competition, was sent by Mr. Hartland, Cork.—W. J. M., Clonmel.

MR. GEORGE WILLIAM JOHNSON.

FOR upwards of half a century the name of Mr. G. W. Johnson has been associated with the gardening literature of this country. So early as the year 1826 we find him communicating articles to "London's Gardener's Magazine," and in 1829 he published his "History of Gardening," which is the most complete work up to the date of its appearance which has been written in the English language.

Mr. George William Johnson was the younger brother of the late Mr. Cuthbert William Johnson, the well-known writer on agricultural subjects. They were the sons of Mr. Wm. Johnson of Widmore House in Kent, where the eldest son was born. Mr. G. W. Johnson was born at Blackheath in Kent, 5th of November, 1802. He is descended from a Durham family long settled at Loup and Cainrow in that county. His grandfather came to London early in the last century, where he established himself as a goldsmith and banker, and having amassed a large fortune he was at the time of his death in 1790 possessed of Easby Abbey

in Yorkshire, Welders, near Chalfont St. Giles, in Buckinghamshire, and the Vauxhall Distillery (now Messrs. Burnett's) in Surrey. Mr. G. W. Johnson's father inherited the Vauxhall Distillery and the Buckinghamshire property with a share of the personal estate, while his uncle succeeded to Easby Abbey and a competency. Some changes in the excise laws by which the trade of the English distillers was injuriously affected induced Mr. Johnson to dispose of the distillery, and being a man of active mind and great ingenuity he embarked in various commercial speculations, of which the celebrated Colebrookdale China Works was one. After some years he retired from these, and eventually established the Salt Works at Heybridge in Essex. Here it was that his two sons, Cuthbert and George, found an occupation suitable to their natural inclinations, for early in life both brothers evinced a strong predilection for the study of practical chemistry and the cultivation of the soil. The Salt Works enabled them to carry out those experiments in the application of salt as a manure, which culminated in a work by Mr. Cuthbert Johnson entitled "The Uses of Salt in Agriculture." One of their most important discoveries was a method for the separation of the sulphate of magnesia or Epsom salt from sea water, by which the price of the article was very much reduced.

We have already stated that Mr. Johnson's connection with the gardening press began in 1826, but before this he had written articles for the *Essex Standard*, published at Chelmsford. His first communication to "London's Magazine" was upon "The Employment of Salt as a Manure in Gardening." In the same journal he began in 1827 a series of papers entitled "Outlines of Horticultural Chemistry," which extended over two volumes. His first independent work was "A History of English Gardening, Chronological, Biographical, Literary, and Critical," published in 1829. It contains a vast amount of information, and exhibits great patience and research on the part of the author. In addition to the record of almost every work on gardening which has issued from the press in this country, together with their various editions, there is a short biographical sketch of the authors, rendering the book full of interest. Mr. Johnson tells an anecdote in connection with this work which affords him great amusement. Some years ago he called at the shop of Pamplin, a second-hand bookseller in Frith Street, Soho, and inquired for a particular edition of a certain work, which the bookseller told him never existed. "It is mentioned in Johnson's 'History of Gardening,'" said Mr. Johnson. "Ah," said Pamplin, "that is not a book of much authority." "I am aware," said Mr. Johnson, "that it has many faults, for I am the author of it!"

While still continuing his connection with the Salt Works Mr. Johnson devoted all his spare time to the pursuit of literature and the cultivation of science. At Great Totham where he resided he conducted experiments in gardening, and especially in the application of substances as manure. But the versatility of his mind led him to other pursuits, and he, after great research, wrote a "History of Great Totham," which was printed by Mr. Charles Clarke, at his private press in the village, in 1831. This work is now extremely scarce, and is eagerly sought after by collectors at prices the mention of which produces a smile on the author's countenance. During his researches at the reading room at the British Museum while the "History of Great Totham" was in progress Mr. Johnson discovered that one Edward Goodshaft had left an estate for the benefit of the poor of the parishes of Great Totham and Little Braxted in Essex. This benefaction had for many years been diverted, and the parishes which were interested in it were ignorant of its existence. It was through Mr. Johnson discovering an extract from the will of Goodshaft that the property was restored. In 1835 he published a memoir of John Selden, which was dedicated to the late Earl of Derby when he was Lord Stanley. In 1839 the two brothers edited an edition of Paley's works with very copious notes, the "Natural Theology" being undertaken by Mr. C. W. Johnson, and the "Evidences of Christianity" by Mr. G. W. Johnson, the latter of whom having for some time been reading for the bar, was called by the Society of Gray's Inn in 1839, and then he proceeded to India at the time of Lord Auckland's administration as Governor-General. He was appointed Professor of Moral and Political Economy in the Hindoo College at Calcutta, and besides being co-editor of the *Englishman* newspaper, he edited the *Government Gazette* for Lord Auckland. His residence in Calcutta did not extend beyond three years, and he returned to England in 1842, when he wrote "The Stranger in India," in two vols., which was published by Colburn in 1843.

Before starting for India Mr. Johnson had been consulted by the churchwardens of Braintree in Essex on the question of a rate for the repair of the church which had fallen into disrepair. This became a question of great public importance, and it was

on Mr. Johnson's advice that the churchwardens imposed the rate. The church was in a very dilapidated state, so much so as to be thoroughly unsafe. The churchwarden, a Mr. Velly, summoned a meeting of ratepayers of the parish to consider the state of the church, and to propose a special rate for its repair. The parish of Braintree consisted almost entirely of silk-weavers who had settled there years before. The majority of these were dissenters, consequently much averse to helping in anything to do with the church; the question, therefore, when put at the meeting was only agreed to by a very small minority of the ratepayers, the majority refusing to pay a farthing in such a cause. Mr. Velly in despair went to Mr. Johnson to ask him what he thought could be done when the case was so urgent. "What shall you do?" said Mr. Johnson, "why, sir, if the case is as urgent as you say it is you ought first to consult an architect, obtain his opinion as to the state of the church, then call a meeting of ratepayers and inform them of his opinion. If the dissenting majority still hold out request the signatures of the church minority consenting to a rate for repairs, and on that minority proceed accordingly."

Mr. Velly acted on Mr. Johnson's advice. He consulted two architects, who both pronounced the church unsafe and in need of repair; then he called a meeting of ratepayers as arranged, and on the majority refusing as usual to consent to a rate, he obtained the signatures of those who did agree, and with their co-operation the church was restored.

The dissenters, indignant at the course taken by the churchwarden, carried the question to a court of law, and the case was heard at Westminster in January, 1846, where it was argued by Sir Fitzroy Kelly, Q.C., Mr. T. Barnes, Q.C., and Mr. T. Arnold for the plaintiffs in prohibition; and by Sir F. Thesiger, Mr. G. W. Johnson, and Mr. W. Ogle for the defendants. Lord Denman and the three other Judges of the Court of Queen's Bench and the Court of Exchequer decided that the opinion given by Mr. Johnson was perfectly correct, and according to precedents dating as far back as the reign of Queen Elizabeth. This decision was appealed against, and the adverse majority being led by Mr. Courtauld of Gosfield Hall, carried the case to the House of Lords, who decided that the adverse opinion must prevail if sustained by a majority of the parishioners. A few months ago we saw the following announcement in the *Times*—"Mr. Samuel Courtauld of Gosfield Hall, Essex, died on Monday, in the eighty-eighth year of his age. Had the death of Mr. Courtauld happened some thirty or forty years ago a popular hero would have passed away; but he had lived to be almost forgotten, reposing, as he had done for nearly thirty years, on his laurels. It was he who, in the very first year of Her Majesty's reign, raised in the Consistory Court the question as to the legality of a church-rate imposed by a minority of parishioners against the will of the majority. This was known as the 'Braintree case,' and its final decision on appeal by the House of Lords in 1853 practically gave the law of church-rates in every shape its *coup de grâce*. Mr. Courtauld was the head of a large crape manufactory at Halstead. He was uncle of Mr. George Courtauld, M.P. for Maldon."

On his return from India Mr. Johnson settled at Winchester, and again turned his attention to gardening pursuits. His first success was the issue of "The Gardeners' Almanack," published by the Stationers' Company, which continued without interruption from 1844 to 1866. In 1845 was published "The Principles of Practical Gardening," the object of which is thus stated in the preface—"For nearly twenty years the author of these pages has laboured to make the gardeners of England more generally aware than they are, even at present, of the principles on which their practices are or ought to be founded. The results of his early researches have from time to time been made public, and those together with more that are new he now offers to his readers in a collected and orderly form."

This work was subsequently much enlarged and re-issued in 1862 under the title of "The Science and Practice of Gardening." "A Dictionary of Gardening" appeared in 1846 and met with a welcome reception. This was the forerunner of "The Cottage Gardener's Dictionary," published in 1852. In 1847 Mr. Johnson commenced a series of works called "The Gardener's Monthly Volume," the first volume of which on the Potato was written by himself. Twelve volumes of this series appeared, each of which is devoted to some important subject connected with gardening, and written by the best authorities.

On the death of his father-in-law, Mr. Newington Hughes, a banker at Maidstone, Mr. Johnson succeeded to his property, and thus the Fairfax MSS. came into his possession. These consisted of the whole of the correspondence of Ferdinando Lord Fairfax and his son Thomas, the great parliamentarian general during the period of the civil wars. They were discovered in a chest which

was sold as old lumber at a sale at Leeds Castle in Kent, the seat of the Fairfax family, on its coming into possession of the late Mr. Wykeham-Martin. The purchaser was a shoemaker of Maidstone, who cut up the letters as he required them to take measurements in his trade. On one occasion when he called on Mr. Hughes, and in his business capacity made use of a portion of an ancient manuscript, the keen eye of the antiquarian was arrested, and

after an examination of the precious documents Mr. Hughes became the purchaser of them. When they came into Mr. Johnson's possession he offered them to Mr. Richard Bentley with a view to publication, and they were eventually published in four large octavo volumes, the first two of which were edited by Mr. Johnson in 1848.

We come now to a period of Mr. Johnson's career when his



Fig. 3.—MR. GEORGE WILLIAM JOHNSON.

name became more familiarly and intimately connected with horticulture. He entertained an opinion that the time had come when the gardening taste of the country had so greatly developed among the middle classes that a journal issued weekly, giving advice as to the operations to be attended to in small gardens, would meet with a ready circulation. Mr. Johnson consulted Mr. Orr, at that time an extensive publisher in Paternoster Row, on the subject, and the result of the consultation was the publication

on the 5th of October, 1848, of the first number of *THE COTTAGE GARDENER*. It was a modest production of twelve pages, but it was stored with wisdom and knowledge communicated by some of the best practical men of the day. The venture was justified by the result, for *THE COTTAGE GARDENER* was a wonderful success from the first.

In the year 1851 a friendship sprang up between Mr. Johnson and the present editor, Dr. Hogg, which through all these years

has been a source of unalloyed pleasure and happiness to both. Imbued by the same feelings and actuated by the same motives these two gentlemen have, during a period of thirty years, worked in perfect harmony, devoting themselves to the service of the public, and doing whatever seemed to them to contribute to the welfare and enjoyment of a large mass of the population of these kingdoms and their dependencies. THE COTTAGE GARDENER continued to prosper and increase in influence and in power. As its field of readers increased its sphere of usefulness widened also, and the work of its Editors was to meet the requirements of those who came to them for instruction. By degrees these requirements rose to a higher standard than was contemplated when THE COTTAGE GARDENER was first published, and the universal opinion of the public was expressed by a writer in *The Quarterly Review*, when he said that THE COTTAGE GARDENER was for the occupiers of a cottage to which a double coach-house was attached. Acting on this hint the Editors decided on changing the title to THE JOURNAL OF HORTICULTURE, and for the last twenty-one years our Journal has appeared under that designation. In addition to the works already mentioned Mr. Johnson wrote "The Chemistry of the World," "The British Ferns Popularly Described," besides many pamphlets on various subjects.

On the close of last year Mr. Johnson retired from a life of activity to enjoy the repose which he so well earned; and our readers, we are sure, will unite with us in the hope that he will long continue to participate in the pleasure which a quiet life in the midst of a garden of pleasures can afford.

BRENTWOOD HORTICULTURAL SOCIETY.

JUNE 30TH.

THE summer Exhibition of the above Society was held in the grounds of Countess Tasker, and was favoured with fine weather—a rarity for the summer Exhibition. The attendance of visitors was large. In the latter part of the day the shops were closed, and the tradespeople gave their assistants an opportunity of witnessing the Exhibition. The season being cold late Roses and outdoor products were not up to the usual standard, but indoor productions were well represented. We regret, however, that owing to the great demands upon our space the exhibits can only be briefly alluded to.

In the class for twelve plants, flowering and fine-foliage, a silver cup was offered, which was won by Mr. Harris of Chelmsford, whose collection contained some handsome plants. The second prize was taken by Mr. Young, gardener to O. E. Coope, Esq., Rochets, South Weald, with good specimens; the third prize being secured by Mr. Wise, gardener to W. A. A. Ogg, Esq., Hampton House. For six stove and greenhouse plants Mr. Bones, gardener to D. McIntosh, Esq., Havering Park, and Mr. North were the prizetakers. Mr. Bones was also first with six fine-foliage plants, showing admirable specimens of Crotons and other plants. Exotic Ferns were well represented by Messrs. Bones, Harris, and Wise, who gained the prizes in that order. Pelargoniums were shown by Messrs. Bones and Meadmore in very fair condition, and secured the chief prizes. The prizes for specimen Fuchsia were awarded to Messrs. Wise, Meadmore, and Dr. Quennell. The Roses were but poorly represented. Messrs. W. Paul & Son had some good stands not for competition. For forty-eight varieties Messrs. Saltmarsh were first, and Mr. Meadmore second. Mr. Harrington, the Rev. J. B. Pemberton, Mr. J. C. Quennell, Mr. Clements, Mr. Charter, Mr. Edwards, gardener to the Rev. Canon Tarver, and Mr. Carver, gardener to J. Postans, Esq., secured the other principal prizes.

The exhibition of fruit was good for the season, especially Grapes, Peaches, and Melons. For a collection of four dishes of fruit the first prize fell to Mr. Brunt, gardener to Lieut.-General Fytche, Pyrgo Park, Romford, who had a green-fleshed Melon, Elruge Nectarines, Téton de Venus Peaches, and Black Hamburgh Grapes; second Mr. Foster with Black Hamburgh Grapes, Buckland Sweetwater Grapes, Royal George Peaches, and an excellent Golden Perfection Melon; third Mr. Bones for Black Hamburgh Grapes, Muscats not ripe, good Royal George Peaches, and a green-fleshed Melon. Extra prize to Mr. Wilson, gardener to E. H. Hardwick, Esq., Herongate, for Black Hamburgh Grapes, a dish of Peaches (two sorts in it), Strawberries, and a dish of Elruge Nectarines. Grapes, Melons, Gooseberries, and Currants were also fairly represented. Vegetables not very numerous but of good quality.

TUBEROUS-ROOTED BEGONIAS.

SLOWLY but surely have tuberous-rooted Begonias made their way to a prominent position in the front rank of our most cherished garden flowers—slowly at first, but with accelerated speed since the beautiful varieties obtained by cross-breeding and ever on the increase have been brought into commerce. Regarded on their first introduction during the first decade or two of the present century as tender stove plants and treated as such for a long while subsequently, it was not easy to induce oneself to regard them as greenhouse plants of most easy culture;

and it certainly was a surprising revelation when we were told that the brilliant-flowered native of Peru, B. Veitchii, had proved so hardy under culture in this country as to bear the effects of severe frost with impunity. In many a garden the hint was turned to best account, not by attempts to prove that other varieties were hardy, but by planting trial beds with a mixture of several sorts in summer, and thus proving that here, at any rate, was an invaluable rival to our choicest bedding plants, free of growth, profuse of flowers—flowers that were unspoiled by rain, and which now vie with Geraniums in brilliancy of colour, and are no unworthy compeers of the softer-tinted Verbenas and Fuchsias, for the colours are so varied, embracing scarlet, crimson, white, yellow, pink, carmine in so many shades and such marvellous delicacy of tints, as to render a description of many of them so difficult that two persons hardly ever describe them alike; and when we see in the catalogues such terms as "sparkling cinnabar-red," "fiery scarlet-red, shaded deep velvet," and "purplish vermilion scarlet," we may be certain that the colourist has felt puzzled how to convey some idea of the singular combination of colour to be found upon a single petal. But it is not solely for the flowers that we value this beautiful section of the Begonias; the foliage in its way is equally attractive in form, colour, and the singular venation that in some instances assumes the form of irregular network. The colour is singularly complementary to that of the blossom. Take for example the Hon. Mrs. Albert Brassey, with its bright rich glowing scarlet flowers, which appear all the more brilliant from the soft quiet tone of its deep green foliage; or the new dwarf variety Commodore Foot, with deep velvety crimson flowers nestling among very dark green downy foliage; or the L'Abbé Froment with its bold large handsome foliage, out of which springs lovely clusters of delicate yellow flowers.

To develop the full beauty of foliage and blossom pot culture under glass is absolutely necessary. This, however, involves no outlay for artificial heat, for the amateur who has wintered his tubers upon a back shelf of his little greenhouse or conservatory has only to take them down in March and repot in a compost of equal parts of fibrous loam, leaf soil, and a little sand, using plenty of drainage, then place them in a light airy position, and be careful not to overwater, but only to keep the soil moderately moist till the roots are fairly spreading in it. Pay particular attention to this, or the tubers may decay. Some of the tall-growing sorts require supports, but no artificial training or pinching is necessary. Take care not to crowd the plants, but afford each ample space for the full play of light and air around them to induce as dwarf bushy a habit as may be, a few plants so managed affording much more gratification than a crowd with slender attenuated growth ever can do.

Another easy and desirable way of growing many of them is as basket plants suspended from the roof of a conservatory, taking care to select sorts with drooping growths. Many varieties have pendant flower clusters, but it is worth some attention to secure the best for this purpose. In addition to those mentioned last week, one of the best for baskets is the grand new variety Gohath with its magnificent pendant clusters of a rich orange colour, developed so fully in the unopened flower buds as to render them singularly striking and ornamental. With this I may select of older and better known varieties Prince of Denmark, deep pink; Sedeni, bright crimson; Admiration, rosy red; Purple Emperor, purple magenta; and the grand double variety Pæoniaeflora with its huge salmon-coloured flowers, as an excellent half dozen wherewith to begin basket culture. To facilitate their management and to enable one to enjoy a close inspection, each basket should have a chain and an ornamental counterpoise running over a wheel fastened to the roof so that it may be lowered or raised at will.

Before planting Begonias in open beds especial care must be taken to have the soil thoroughly light, rich, and well drained. Bring on the plants as forward as possible in spring, but do not plant out till the end of May, or rather till settled warm weather insures a quick establishment in the beds, for then they grow so fast as to well reward one for the exercise of a little patience. Once in bloom they continue in full beauty till checked by frosts, and if lifted with care in autumn before the cold has injured them, and transplanted to an orchard house border with Russian Violets and Chrysanthemums, they continue bright and attractive well into December, without detriment to the tubers, which are afterwards carefully stored in dry sand in a frost-proof shed till the following spring.—E. L. S.

ROSES ON THEIR OWN ROOTS.—Your correspondent, Mr. W. Taylor, in a very interesting letter on Roses on their own roots,

says that other Roses besides Teas succeed well if grown from cuttings. Would he send a list of the Hybrid Perpetuals which succeed best grown in this manner, and oblige?—AN OLD CORRESPONDENT.

ALONSOA INCISIFOLIA.

THE woodcut (fig. 4) represents a spray of an old but useful plant, that when well grown produces a most effective display in a greenhouse. Its long slender racemes of bright orange-scarlet-tinted, peculiarly formed flowers are produced very freely, and a



Fig. 4.—*Alonsoa incisifolia*.

few good specimens can be most advantageously employed for arranging with other plants bearing lighter or quieter-coloured blooms. It succeeds well in pots, moderately light soil being required, and a few stakes may be employed to keep it in shape, as it is of somewhat straggling habit when left unattended in that respect.

The species which has been known under the names of *Hemeris* and *Celsia urticifolia* is a native of Chili, whence it was introduced at the close of the last century. The upper leaves only are shown in the figure, but the lower are broader and more deeply cut, from which circumstance the specific name is derived. The black spot in the centre of the flower also distinguishes the plant from some other forms.

MAIDSTONE ROSE SHOW.

ON a very hot and ruinous day for Roses this very excellent little Exhibition was held on Monday last at the Concert-room, and although small in number yet the Roses were of first-rate quality; indeed, very few flowers of indifferent quality were shown, and the Teas were exceptionally good, and for a small Show large in number. Mr. John Hollingworth, probably the oldest Rose exhibitor in England, was in full force, and showed some excellent Roses;

indeed, it would be invidious to particularise, although the Judges had to do so, and select the best box in the Show irrespective of numbers, an honour which fell to the Rev. H. B. Biron, of which more presently. The first prize for eighteen was awarded to Mr. J. Hollingworth, Turkey Court, Maidstone, for a box containing Etienne Dupuy, Gabriel Tournier, Annie Wood, Sir Garnet Wolseley, Avocat Duvivier, Marie Rady, Thomas Mills, Baronne de Rothschild, Madame Victor Verdier, Pauline Talabot, Paul Verdier, Comtesse d'Oxford, Dupuy Jamain, Xavier Olibo, Pierre Notting, Le Havre, and Thomas Mills. Mr. F. Warde was second with a box of nearly equal merit. The prize for the best twelve was awarded to the Rev. H. B. Biron for a box containing Roses of his usual excellent quality; in fact, it gained the National Rose Society's silver medal as the best box in the Show. It contained a grand bloom of Marie Baumann, La France, Marie Rady, Capitaine Christy, Marguerite de St. Amand, Star of Waltham, Eugénie Verdier, Souvenir de Paul Neyron, a splendid flower; Eugène Furst, very fine; François Michelin, Reynolds Hole, and Lord Macaulay. Mr. H. W. Wakeley was second with a good box, consisting of Paul Verdier, Baronne de Rothschild, Capitaine Christy, Alfred Colomb, Pierre Notting, Maréchal Niel, Duchesse de Vallombrosa, Xavier Olibo, Camille Bernardin, John S. Mill, Etienne Levet, and Duke of Connaught. The cup for twenty-four, given by the Mayor of Maidstone, was won also by Mr. Hollingworth with a fine box containing Paul Neyron (a not overgrown bloom, and full), La Rosière, Napoleon III., Caroline Kuster, Baronne de Rothschild, Gloire de Santenay, Etienne Levet, Capitaine Christy, and Camille Bernardin.

In the class for six Mr. P. Burnside was first with a very nice box containing Duke of Edinburgh, a fine bloom, which gained him the bronze medal of the National Rose Society for the best Rose in the Show; Baronne de Rothschild, Charles Lefebvre, Devoniensis, La France, and Catherine Mermet were also fine. Mr. Wakeley was second, and Mr. G. Mount and Rev. J. M. Fuller equal third. In the class for twelve Teas, for which several boxes were staged, Captain Knight of Bobburg was first with good blooms. Mr. John Hollingworth was second. In the class for six Teas Austin J. Killick, Esq., was first with excellent blooms. In the class for twelve blooms, six Hybrid Perpetuals and six Teas, the Rev. H. B. Biron was again first.

The ladies' challenge cup for the best stand arranged with Roses and foliage was won and finally retained by Mrs. H. B. Biron, whose arrangement was simple and excellent. There were several good buttonhole bouquets, although the usual fault was committed in many instances of putting too much into them.

The arrangements were all quietly and effectually carried out by the Secretary of the Society, Mr. Hubert Bensted, who may well be congratulated on the success that has attended his disinterested labours, for he is not now an exhibitor, but can rejoice to see others win the laurels he at one time carried off.—D., Deal.

CALOCHORTI.

OF late years we have had, by the zeal of collectors, a large number of bulbs introduced to our gardens from California—*Calochorti*, *Cyclobothra*, *Brodiaea*, and others, some of which are easy enough of cultivation, while others are difficult, not to grow, but to flower. Amongst the most quaint and beautiful of these are the *Calochorti*, or, as they are fancifully called by some, the Butterfly Tulips of California. Some years ago, captivated by flowers I had seen, I obtained a few of the bulbs and grew them in pots. These flowered beautifully, and were certainly a very great enjoyment from the peculiarity of their colouring and general elegance; but since then I have not been so successful. They grow well enough, make good foliage, but before they show bloom there are symptoms of failing, and they die off before flowering. I have asked many growers of such plants how they succeeded with them, and have been generally answered by a declaration that they experienced the same want of success. I have been, indeed, informed that they grow very well in a cold frame planted out; but I have not cared to try this, for we do not get much benefit from their beauty unless the flowers are cut. There must be, one would think, some way of managing them, and if any of the readers of the Journal have succeeded with them I shall be very thankful to be told how. The plants have this year bloomed somewhat better, but still they are not satisfactory, and a pot or two of seedlings from which I had been expecting much have again disappointed me by not flowering.

After saying this it may seem useless to direct attention to these bulbs, but all may not be so unsuccessful in growing them as I have been. Moreover, someone may hit upon a plan for their culture which may obviate the difficulties, just as the late Mr. Charles Leach found out twenty years ago the plan for growing *Disa grandiflora*, as I believe there is much to be learned as to the culture of many species of Lilies concerning which we get no satisfactory results.

Taking, then, the *Calochorti*, the following are the most beautiful. *C. caeruleus*.—A very curious dwarf-growing species. I do not see it in Mr. Ware's list under this name; but as he describes

C. elegans in much the same way as I should describe this—white with purplish hairs, almost reminding one of the mouth of the goat-sucker—it may be that it is the same, for there has been a curious confusion both of the generic and specific names of these bulbs. *C. albus*.—Pretty, drooping, white-fringed flowers. *C. luteus*.—I received some years ago from Messrs. Backhouse a variety of this called *oculatus*, very beautiful, with deep black spots in the petals, which I have found the most easily grown of any I have. It has bloomed every year, and is really very pretty. *C. pulchellus*.—Drooping yellow curiously formed flowers. I have recently had it in flower, and it is sure to attract anyone coming into the greenhouse by the quaintness of its appearance. *C. splendens*.—Large, deep, open lilac flowers. This is one of those very beautiful species which have earned for them the name of Butterfly Tulips. *C. venustus*.—This I think is the most beautiful of the whole tribe. Nothing can be more charming than its combination of colours—white, yellow at the base, with crimson pencillings in the petals.

There is one provoking thing connected with all these Californian bulbs—viz., that their foliage is so unsatisfactory, it is lowly and spreads about over the pots—no neatness whatever in it, and adding nothing, as in so many plants, to the beauty of the flower.—D. O

ROYAL BOTANIC SOCIETY.

JULY 6TH.

THE second Summer Show of this Society, though not quite so large as in some previous years, was yet extremely attractive, fruit being remarkably well shown. The following is a brief review of the principal features.

STOVE AND GREENHOUSE PLANTS.—In the open class for twelve Messrs. Jackson & Son, Kingston, were easily first with neat specimens, two fine *Kalosanthes* being noteworthy—viz., *K. coccinea superba* and *Mr. Duphemis*. Messrs. B. Peed & Son, Lower Streatham, were second with smaller plants; Mr. G. Wheeler, gardener to Lady Louisa Goldsmid, Regent's Park, being third. For six plants from amateurs Mr. D. Donald, gardener to J. G. Barclay, Esq., Knott's Green, Leyton; and Mr. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, were the prizetakers. The best nurserymen's six was from Messrs. Jackson & Son, *Kalosanthes Dr. E. Regel* being especially fine. Messrs. B. Peed & Son, Lower Streatham, took the second place with fine specimens.

Pelargoniums.—These were not largely represented, nor were the specimens of extraordinary merit, but the flowers were fine and the colours good. Mr. C. Turner, Slough, was first in the nurserymen's classes for Show and Fancy varieties, showing very fair examples of good varieties. Mr. J. Wiggins, gardener to H. Little, Esq., Hillingdon Place, Uxbridge, also carried off the prizes in the amateur classes with neat specimens. Zonals were shown by Mr. J. Catlin, gardener to Mrs. Lernitte, Finchley, and by Mr. W. Meadmore, Romford, the former having very well-flowered plants.

Tuberous Begonias.—Only two collections were staged, Mr. H. Coppin, Shirley, Croydon, being first in the nurserymen's class with compact specimens fairly well flowered; Mr. J. Child obtaining a similar position in the amateurs' class with larger, looser, but freely flowered specimens.

ORCHIDS.—A very pretty bank of these was formed in the usual position, many handsome specimens being staged. Mr. B. S. Williams, Upper Holloway, secured the chief position in both nurserymen's classes with good examples of *Brassia verrucosa major*, *Cypripedium barbatum major*, *C. superbiens*, *Epidendrum vitellinum majus*, *Cattleya Mossiae superba*, and *Lælia purpurata*. Mr. H. James, Norwood, was a good second with twelve, and also second with six, Messrs. Jackson & Son being third. The prizes for amateurs were taken by Mr. J. C. Spyers, Orchid Grower to Sir Trevor Lawrence, Dorking, who showed *Epidendrum nemorale* in magnificent condition; *Dendrobium McCarthiae*, the brilliant *Renanthera coccinea*, and *Lælia purpurata* being also very fine. Mr. C. Coningsby, gardener to C. Dorman, Esq., Sydenham, obtained the second prize for twelve with a very interesting collection of well-grown plants. The winners of the prizes for six were Messrs. Coningsby and Child, both staging fine plants.

FINE-FOLIAGE PLANTS.—The best six fine-foliage plants in the nurserymen's class was from Mr. B. S. Williams, who had good *Crotons*, *Palms*, *Ferns*, &c. The same exhibitor had the best six *Ferns*, the *Gleichenias* being very fresh. Mr. H. James was second in the former class. The chief amateurs' collection of six fine-foliaged plants was contributed by Mr. Rann, gardener to J. Weston, Esq., Handcross Park, Crawley, the plants composing it having been frequently mentioned at previous shows this year. Mr. Rann was also second with six *Ferns* in fine condition. Mr. G. Wheeler was second in the former class; Mr. R. Butler, gardener to H. Gibbs, Esq., St. Dunstan's,

Regent's Park, being third. The first prize for *Ferns* was secured by Mr. H. Brown, gardener to T. A. Steel, Esq., Littlecote, Streatham, with very large *Davallias* and a handsome *Gleichenia microphylla*. An extra prize was accorded for a good collection of *Ferns*.

Cut Flowers.—Roses were fairly represented by Mr. C. Turner, Slough, Messrs. G. Paul & Son, Cheshunt, Mr. B. R. Cant, Colchester, among the nurserymen; and by Mr. Moorman, gardener to Miss Christy, Coombe Bank, Kingston, Mr. G. P. Hawtrey, Slough, and Mr. J. Hollingworth, Maidstone, among the amateurs. The other classes were well filled.

FRUIT.—The Fruiterers' Company's prizes for collections of fruit were awarded to Mr. W. Coleman, The Gardens, Eastnor Castle, for a handsome collection, Black Hamburgh and Gros Maroc Grapes, Bellegarde and Royal George Peaches, Lord Napier and Violette Hâtive Nectarines being especially fine; and Mr. W. Wildsmith, gardener to Viscount Eversley, Heckfield, for a collection nearly equal to the other in merit. The Society's prizes for six kinds were secured by Messrs. Wildsmith, Coleman, and G. Miles, The Gardens, Wycombe Abbey, Bucks, all showing very well. There were eight competitors. For a basket of black Grapes there were eleven entries, mostly of fair quality. Mr. P. Edwards, gardener to Miss Tristram, Liphook, Hants, Mr. Wildsmith, and Mr. Coleman were the prizetakers in that order. In the other classes for Black Grapes Mr. W. Allan, gardener to Lord Suffield, Gunton Park, Mr. Wildsmith, Mr. Edwards, Mr. Bolton, gardener to W. Spottiswoode, Esq., Sevenoaks, and Mr. Tucker, gardener to J. L. Lovibond, Esq., Farnborough, were the prizetakers. Pine Apples were well shown by Mr. G. Bailey, The Gardens, Shardeloes, Amersham; Mr. J. Wilkinson, gardener to Viscount Gage, Lewes; and Mr. W. Pratt, The Gardens, Hawkstone, Shrewsbury, who secured the prizes. White Grapes were rather unripe. The chief prizes were accorded to Mr. P. Feist, gardener to J. Ashton, Esq., Bishopgate House, Staines; Mr. Blundell, gardener to T. Holman Esq., Sussex; Mr. Tucker; Mr. J. Douglas, gardener to F. Whitbourne, Esq., Loxford Hall; and Mr. W. Mowbray, gardener to the Earl of Leven and Melville, Slough. Melons, Peaches, Nectarines, Strawberries, and Cherries were also shown in large numbers.

MISCELLANEOUS.—Messrs. J. Veitch & Sons contributed a handsome group of novelties, and were awarded a small silver-gilt medal. Mr. B. S. Williams sent a group of choice plants, and was accorded a large silver medal. Messrs. John Laing & Co. were awarded a large silver medal for a group of fine-foliage plants and *Begonias*. The General Horticultural Company staged a magnificent collection of *Crotons* and *Ferns*, the former remarkably well coloured. A silver medal was awarded. Messrs. J. Carter & Co., High Holborn, secured a similar award for a large collection of *Petunias* and *Coleuses* similar to those they had at Kensington. Mr. B. Morrell, gardener to E. Rutter, Esq., Richmond, obtained a small silver medal for a group of very fine *Gloxinias*. A silver medal was awarded to Messrs. Low & Co. for a collection of *Orchids* and *Anæctochili*. Large bronze medals were awarded to Mr. G. Wheeler for a group of plants; to Messrs. W. Paul and Son, Waltham Cross, for several boxes of *Roses*; and to Messrs. H. Cannell & Son, Swanley, for a collection of *Pelargonium* blooms and Mr. Wiggins secured a small silver medal for a group of new *Pelargoniums*.

New plants were abundantly shown, and many were certificated, but we are compelled to defer their description to our next issue.



HARDY FRUIT GARDEN.

NOTWITHSTANDING the cold and drought of the spring and early summer months the fruit crop is now found to be in a more satisfactory state than might have been expected. Apples are plentiful, so also are Plums and Cherries. Pears are very thin, in some cases nearly a failure. Apricots are light, the best being Blenheim or Shipley, Kaisha, St. Ambroise, and Moorpark. Peaches and Nectarines with Figs are very variable. Bush fruits, with the exception of Raspberries, which in many instances had the fruiting canes injured by the severe frosts of winter, are exceedingly abundant and fine, especially Currants—Red, White, and Black. Strawberries are abundant and the fruit generally of good quality, though not so large as could be wished, no doubt owing to the drought. Continue to carry out former directions as regards stopping or removing superfluous or fore-right shoots, nailing, tying-in, or laying-in to the wall the necessary supply of young shoots, so as to admit increased light and air to ripen the wood and buds. Pay particular attention to the trees, and do not allow insects to spread, but promptly apply an insecticide. Red spider is appearing on wall trees, which should be forcibly syringed

in the evening of hot days, and well supplied with water at the roots, especially those carrying full crops and with the roots restricted. Vines trained to walls should have the growths closely nailed in, not allowing them to become too crowded, but train in rather thinly and keep the laterals closely stopped, in order to obtain every advantage in the way of increased temperature which the wall may afford. Figs should have similar attention, rubbing off foreright and all superfluous growths, taking out the points of all shoots except extensions at the fifth leaf, and keep them well secured to the wall. Outdoor fruit ripening must be protected by nets or in some other way from the ravages of birds. Ground intended to be planted with Strawberries should, as it becomes cleared of early Potatoes or Peas, be prepared by well manuring and trenching. It is not usual, except for forcing, to layer the plants in small pots, but it is advisable to obtain strong well-rooted runners, which if turned out when they have filled the pots with roots where they are to remain, will sooner become established and afford a full crop of fine fruit another season. The best varieties with us are Pioneer, Vicomtesse Hericart de Thury, President, Sir Joseph Paxton, Dr. Hogg, Elton, Lucas, Unser Fritz, and Loxford Hall Seedling.

FRUIT HOUSES.

Peaches and Nectarines.—The fruit being all gathered in the earliest houses attend still to syringing the trees to dislodge red spider if it has obtained a footing, and if there be any scale syringe with water at 120°, holding in solution 4 ozs. nicotine soap to the gallon. For dislodging red spider the garden engine is more effectual than the syringe. The roof lights should be removed from the earliest houses so soon as the buds are fairly plump, but avoid over-development, which is more to be guarded against than immature wood and imperfect bud-formation in early houses. If the lights cannot be taken off and the trees exposed to rain, the inside border must be well watered; and an occasional supply of liquid manure will greatly assist weakly trees, or those that have carried heavy crops, in forming plump flower buds. Air must be admitted fully both at the back and front of the house day and night. In succession houses where the fruit is swelling after stoning the syringe must be employed vigorously to keep red spider in check, having the trees free of the pest by these means or the application of an insecticide by the time the fruit commences ripening, when the syringing must cease, maintaining a good moisture by damping the border frequently. Give air freely in all favourable weather, and close early with plenty of moisture, so as to enable the fruit to swell to a good size as well as to economise heat; admit, however, a little air at the top of the house constantly. Attend regularly to tying down the shoots as they advance, thin out any superfluous, pinching in laterals on strong growths. See that there is not any deficiency of moisture in the borders, giving when necessary a good watering, and supply weakly trees or those carrying heavy crops with liquid manure, and mulch the surface of the borders. If mildew appear dust with flowers of sulphur, discontinue syringing for a time, and admit air freely.

Figs.—The first crop in the early house with the trees planted out are now all gathered, and the treatment advised in a former calendar will be in force, under which conditions the second crop will advance rapidly; and as there is sure to be plenty of fruit it must, if not already done, be freely thinned, reserving those for the crop at the base of the shoots. Syringe the trees freely twice a day, red spider being unusually prevalent this season. Trees in pots as well as those in restricted borders will require water frequently and copiously, and on every occasion mix a little guano with it, about 1 lb. to twenty gallons of water. Tie-in the shoots to the trellis as they advance, stop as necessary, removing those not required, and regulate those retained, so that sun and air may mature them. In houses with the fruit ripening maintain a free circulation of dry warm air to insure its ripening perfectly. Trees in pots which will be required for early forcing must not now be neglected, but be attended to regularly in watering with liquid manure, syringing them occasionally to keep down red spider.

FLOWER GARDEN.

Constant care and attention are necessary in this as in every other department to secure neatness. Weeds must be destroyed by frequent hoeing and raking. Lawns will need the machine run over

them at frequent intervals, and the edges of walks and beds require to be neatly trimmed with the edging shears. Take advantage of rain to roll gravel walks, keep them as smooth and firm as practicable. Beds that have been mulched show a marked contrast to those that have not; the plants, having grown freely, require but little attention as regards weeding and watering. Peg down all kinds of trailing plants as they advance in growth, encouraging them and all others to cover the beds as quickly as possible. In watering Calceolarias pour the water between the plants instead of over the leaves, as this as well as heavy rains weigh down the flower heads which may be obviated by twigs of some light kind thinly placed amongst the plants before they bloom. The weather has been too dry for carpet-bedding plants, and unless watering is attended to the progress is very small. Confine the plants to the lines or spaces allotted to them, so that the design may be well defined. Subtropical plants cannot in warm weather be overwatered, but mulching with well-decayed manure will lessen the necessity for it, and encourage surface-rooting and free growth, upon which depends the beauty of these plants. Stake and tie securely as they advance, treating Dahlias and Hollyhocks similarly. Pinks and Carnations should be neatly staked before they become too forward. Push forward the propagation of these by layers and pipings, choosing an old spent hotbed for the latter on which to place the handlights, inserting the cuttings in sharp sandy loam; keep them well shaded, and sprinkle occasionally to keep the atmosphere moist. Roses must be well supplied with water or liquid manure, and the flowers as they fade should be removed, shortening back a little those of the Perpetual class as they cease blooming, and encouraging them in every possible way to make free growth and insure good autumn blooms. Cuttings of Roses root freely if ripened wood is selected, inserting them in sharp sandy soil in frames or handlights kept close, shaded, and sprinkled daily. Briars and other stocks will soon be sufficiently forward for budding, which should preferably be done in dull or after moist weather, as the bark then separates freely. Select buds on wood that has borne flowers, as these are more mature than such as are obtained from quick-growing barren shoots. In extracting the wood from the bud care should be taken that the bark is not bent too sharply or bruised, for if this be done the bud is sure to turn black and fail. For such varieties as Maréchal Niel trained to walls cut out the old flowering wood, laying-in this year's young wood to replace it for next year's bloom.

PLANT HOUSES.

Stove.—The present is a good time to examine the general stock of stove plants to see what may need increasing, it being preferable in many instances to propagate young plants and discard those that have been used some time. Cuttings of most hardwooded plants will now root freely if inserted in sandy soil, placed in a close frame, and shaded until rooted, when they should be gradually inured to the air of the house, and be potted-off singly, keeping them slowly growing through the winter. These will be in an advanced state by spring, and calculated to make a good growth. Gardenias, Ixoras, Tabernæmontanas, Medinillas, Rodeletias, Bougainvilleas, Clerodendron, Combretum, Stephanotis, Thunbergias, Dipladenias, and Æschynanthuses strike freely at this season.

The successional batch of Euphorbia and Poinsettia cuttings inserted some little time ago will now be rooted, and should at once be transferred to large pots, as it is important they do not remain so long in small pots as to become stunted, otherwise a free growth can hardly be expected afterwards. Poinsettia cuttings may be inserted as they are obtainable, and in a rather close frame they will root freely and make dwarf plants very useful for decorative purposes. Any choice varieties of Gloxinias may now be propagated by leaf-cuttings, which root better now than earlier in the season, when they are soft.

The earliest-flowered Ixoras if placed in a brisk heat will grow and flower again, and will be found extremely useful for cutting during the autumn. If the pots are well filled with roots afford weak clear liquid manure, being careful not to apply it too strong or the roots will be injured. *I. aurantiaca* and *I. coccinea* are the best for this purpose.

For summer and autumn decoration *Æchmeas discolor* and *miniata* are very useful, and should be provided in quantity, they being best grown as single crowns in 6 or 7-inch pots. They succeed in either loam or peat, with about a sixth of sand and a few fine crocks, and some pieces of charcoal to keep the soil sweet, as the plants being epiphytal consequently require plentiful supplies of water, but the compost must be loose so as to allow it to pass away freely. They should be grown on shelves near the glass, so as to cause them to flower strongly. *Tillandsia Lindenii* is of easy growth and one of the most beautiful. Its leaves are long and narrow and generally curved, and when in flower has a fine appearance. It must be grown in a light position, and not have too much heat or be overpotted.

Young plants of *Stephanotis* being grown on for next season's flowering should have their shoots regularly trained near the glass, where they will be exposed to the light and have sufficient air to secure the maturation of the growth. *Clerodendron Balfourianum* that has flowered may, if it be desirable to increase the size of the plants, be placed in heat; and if requiring more root room afford it, employing good yellow loam. The young shoots must be trained near the glass so as to insure sturdy growth. Plants of this as large as desired can after flowering be placed in a light position in a temperature slightly less than the stove, giving no more water than will prevent flagging, and after a rest of about six weeks they may be introduced to heat and induced to flower again.

THE BEE-KEEPER.

THE ART OF SUPERING.

SUCCESSFUL supering is an art acquired by steady thoughtful practice. Beautiful supers of honeycomb are very desirable, and thousands of efforts are unsuccessfully made to obtain them. How many supers, large and small, costly and common, are placed on hives every season that are never filled! Failures in supering are common and discouraging to many apiarians. The successes of others more experienced and skilful in supering, tend to keep alive and encourage the hope in all that future attempts will be crowned with success.

The difficulties in the way of successful supering are, first, unfavourable weather for honey-gathering; secondly, the instinctive desire or passion for swarming on the part of the bees. To meet these difficulties much manoeuvring is often necessary, and therefore we regard successful supering as an art. The question of profit and loss in supering is not to be considered in these notes, only the best ways of obtaining super honey. White virgin honeycomb taken from the sides and crowns of large swarm hives, or bars of white comb outside the brood nest of bar-frame hives, are quite equal in quality and appearance to super honey. Some eight or ten years ago it was suggested that by enlarging bar-frame hives, and by using a greater number of frames in them, virgin honey might be obtained without supers. Efforts in this direction are now being made. Sections of supers are being used and filled in the places of bars.

Large hives are requisites in the work of successful supering. If much work has to be done, or done rapidly, many hands must be employed. The effective strength of hives should be equal to the work expected. Large strong hives capable of gathering from 3 to 7 lbs. daily during a glut of honey, speedily fill good large supers. The superiority of large hives for this work is so evident that it is unnecessary to use a single argument or illustration.

Hives are usually ready for supering about ten days before the bees are ready for swarming. If supers are placed on hives before the bees begin to be straitened for room they do not enter them till they are straitened, sometimes never enter them at all, and sometimes enter them for breeding purposes. In favourable weather the time for supering to commence is when the hive is filled with brood from side to side, and this happens about ten days after all the combs are covered with bees. At such times bees want more store room, and readily enter supers and commence work. "Yes," the reader may say, "I know all this, and have done it many times, but my bees invariably swarm and never fill the supers." This is a common occurrence and a great difficulty everywhere. The wings have been cut from queens to prevent such swarms flying away, or rather to secure their return if they fly away. Another manoeuvre is to ent all royal cells from

the combs before the supers are used, and afterwards to examine the hives every few days with a view to remove every royal cell whether tenanted or not. If two or three sets of royal cells are removed or destroyed the bees often become discouraged, abandon all preparations for swarming, and set to work in earnest to fill supers. But how can hives be examined internally with supers on them? We place our supers on paper so that their combs are not cemented to the crowns of the hives, and therefore can be easily lifted off and on the hive without injury to the combs.

In some apiaries managed on both the swarming and non-swarming principles—in other words, in which both swarms and supers are sought—there is practised a wise and excellent way of having supers filled without danger of losing swarms. One hive swarms naturally or is swarmed artificially, and the swarms are hived. Next day take the queen from the hive ready for supering, or in this case nearly ready for swarming, and give her to the hive that swarmed, and then super the hive deprived of its queen. Thus two great advantages would be gained. The hive that yielded the swarm would have a pregnant and productive queen, and would soon be ready to yield another swarm equal in every way to the first; and the supered hive full of bees and brood would not and could not swarm till the young princesses came to maturity and piped for three days. Piping would probably begin on or about the fifteenth day after the removal of the queen; and while piping is going on how easily all the queens but one could be destroyed. By lifting the super off and driving all the bees into an empty hive the supernumerary queens would be got rid of, and swarming would be next to impossible for about another three weeks. Meanwhile the bees, without brood to nurse, would go on gathering honey. Hives treated in this fashion in good seasons become too plethoric; but if super honey is the summum bonum—the only thing aimed at—it would be easy to give it (the hive honey) to the bees of supered hives to be carried aloft. We say nothing here about the loss of weight sustained in reshipping honey from one hive to be stored in supers on another. To those who merely want super honey or ornamental glasses completely filled this practice is recommended.

The practice of getting early swarms, hiving them in moderate-sized hives, and supering them as soon as they are filled, we strongly recommend. The Stewarton system of putting two swarms into a hive for supering purposes we do not recommend for profitable general practice, but for the purpose of getting a large quantity of super honey from a given hive the practice may be copied now and then. A swarm of bees in May from a large hive is capable of doing a great amount of work of all kinds; and if my only aim were to get the largest possible amount of super honey from the apiary I would never unite two swarms at the swarming season. Two or three swarms may be united with advantage at the end of the honey season to make a hive strong for winter and for work the year following, and is the time to lay the foundations for early swarms and successful supering next year.

Bees naturally swarm once a year as birds build their nests, and by letting them swarm they obey a law of Nature; and though in some extra fine honey years early swarms become parent hives by sending off virgin swarms, they are more easily prevented from swarming than old stocks that have not swarmed at all. Hence they readily take to supers and work heartily in them. Swarms—early swarms—rise in honey seasons to the greatest weights, and by using a little ingenuity in getting them to store honey in supers and side boxes a great amount is sometimes obtained. Even from second swarms and turn-outs early and late supers may be obtained in honey seasons. Early supers are obtained from second swarms and turn-outs in this way. The queens in such swarms are not fertilised, and generally speaking do not begin to lay for ten days after they are hived. Very well, by hiving them in hives with small supers on them the bees commence to build their combs in the supers, and may fill them with sealed honey before the queens begin to breed. Even in unfavourable weather small supers may be filled on such swarms by giving them the honey of the old parent hive after its bees had been turned out.

In using supers a little white guide comb is necessary—natural comb is better than artificial foundations—to induce the bees to enter them at once, and when they commence to fill them it is fortunate if the weather does not cause them to halt before they are filled.

We have not yet tried sectional supers, but have ordered some sets of sections in order to give them a fair trial this year. At present we like best supers of some size, with good thoroughfares between hives and supers. All efforts to prevent breeding in supers have failed. Even if queens are prevented from entering supers, breeding may take place in them, for bees have the power to decide what combs shall be used for brood and what for honey,

and they assist the queen in distributing her eggs in the cells. Wherever bees can go eggs can be carried and used. In supers the bees prepare the cells for the reception of eggs, frequently cutting honey cells to the proper depth for brood.—A. PETTIGREW.

HOW TO MAKE THE MOST OF A STOCK IN A STRAW SKEP.

AN esteemed correspondent of this Journal, in a private letter to me, suggests a second article on the above subject, the object in view being honey rather than increase; and, as I do not wish it to be understood that I consider skeps of use only to stock bar-frame hives from, I accept the hint.

At the outset, however, I must be permitted to describe the sort of skep I should select for the purpose, for there are many styles in use, from the close-top dome-shaped "ruskie," of ancient days, to the capacious Pettigrew skep with its perpendicular sides, flat top, and super hole. In course of veering towards the bar-frame hive Mr. Pettigrew has suggested flat wooden tops with slits to allow the use of foundation; and as many such are already in use in the country, and likely to increase among those who follow his teachings, I shall take it as the hive most nearly approaching my idea of a perfect skep. I should protest, however, against the inordinate and unalterable capacity of the hives Mr. Pettigrew recommends. While I recognise the merits of the skep in its circular form and non-conducting material, I must be permitted to point out its disadvantages from my point of view. These are the want of elasticity, enabling the bee-keeper to contract or expand according to the state of the stock or the necessities of the season; the impossibility of determining at a glance the condition of the interior, such as the first laying of a queen, or the incipient stages of foul brood; and the difficulty of using such modern and undoubted helps as comb foundation and the honey extractor. A weak stock placed on three sheets of comb foundation early in spring is at present stronger than stocks whose bees were then scattered over six or eight frames, and that simply because from the first they have been kept crowded so as to keep their whole domicile warm. For similar reasons Mr. Pettigrew's large skep stocks, though they throw grand swarms, do so too late to take full advantage of the principal honey harvest. Only where heather abounds do they generally give large results.

Were I ever again to use skeps (except purchased ones for stocking bar-frames) I should have my hives made of a uniform diameter of not more than 14 inches, each hive to consist of a body 9 inches deep, two nadirs of half that depth, and at least two supers of the same dimensions, each section to have the top formed of bars temporarily fastened into a wooden rim. Practically this would be the skep transformed into a Stewarton hive. As each nadir and super is exactly half the size of the body, two of them lashed together might form a body hive for temporary use, and thus tend to lessen the number of useless encumbrances where hives of all sizes are kept.

The bars forming the top of each section should be about an inch broad and half an inch apart, except in supers, where 2 inches from centre to centre is the proper distance. They should be all fitted with comb foundation, and no slides used between, only a quilt to cover them. With such a hive managed on the Stewarton system I should have no fear as to results. The bees would winter cosily in the 9-inch body, and as they became crowded in spring a nadir with comb foundation would be added; then a super if honey were abundant; then another nadir to give increased breeding room; then other supers *ad infinitum*! The miserable little supering hole, and the wooden ekes so common, are but clumsy expedients compared with a top of open bars and nadirs fitted with comb foundation. The ordinary supering hole soon gets so nearly filled with comb that there is great obstruction to the passage of bees and fresh air, and the tiering up of one super over another is almost useless. A top of bars and open slits gives free access and ventilation. The usual eke is generally filled largely with drone comb, to the detriment of the stock. Nadirs fitted with comb foundation would prevent this and largely increase the force of workers. The bars also, though temporarily fixed, might at any time be loosened, and, the attachments of a central comb being cut from the hive sides, it could be withdrawn for inspection without serious detriment; and thus to some extent would the hive combine the advantages of the skep, the Stewarton, and the bar-frame. Under no other circumstances could I think of recommending beginners to use straw hives. To sum up shortly: Were I the possessor of a stock in such a hive, and wished for the largest amount of honey, I should start the bees in spring in the smallest space possible, enlarge by nadirs only as they became

crowded; super as soon as the honey flow commenced; give plenty of doorway and gentle upward ventilation, thus lessening the risk of swarming. Attention to the state of the supers obtained by a peep between the bars would give warning when another was required, and so long as there was a prospect of honey to be got these should be tiered up as fast as the bees were found to crowd them. After all a swarm may come off, but it is possible in such a hive to cut out all royal cells and return it. Rather, however, after hiving it in a 9-inch body, I should prefer to place it on the old stand and within a day or two transfer to it the unfinished supers left on the parent hive. The latter thus contracted might still be fit for super work, while the former, greatly strengthened by the flying bees, would work with the energy that natural swarms always possess. The supers alone are in this case supposed to be taken for honey, the contents of body and nadirs being left to the bees. Although there may be nothing new in these hints, I venture to think they are improvements, and may meet the case of some who dearly love the straw.—WILLIAM RAITT, *Blairgowrie*.

TRADE CATALOGUES RECEIVED.

E. H. Krelage & Son, Haarlem.—*Catalogue of Bulbous and other Plants.*

Damman & Co., Portici, Naples, Italy.—*Catalogue of Vegetable and Flower Seeds and Bulbs.*

W. Dobbie, 62, Preston Street, Faversham.—*Select List of Pelargoniums and Fuchsias.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Clematises in Pots (J. P.).—See No. 45, page 349, of the last volume of this Journal for full particulars of the culture requisite for Clematises in pots. The following varieties would probably suit you and maintain a succession of flowers during the period named:—Lady Londesborough, Standishii, Miss Bateman, Albert Victor, Lord Londesborough, The Queen, Sir Garnet Wolseley, Fair Rosamond, Sophie flore-pleno, John Gould Veitch, Lucie Lemoine, Lawsoniana, and the Jackmanni forms. The circumstance you mention respecting the Hedychiums is very curious, but is no doubt due to the plant being in a very dry atmosphere.

Sheffield Rose Show (T. K.).—This Exhibition of the National Rose Society will be held on Thursday, July the 14th.

The Gooseberry Apple (J. L.).—The variety you have is known under the above name. It is a valuable late-keeping culinary Apple, which comes into use in November and continues "till Apples come again." It is extensively cultivated in Kent and Sussex, especially about Faversham and Sittingbourne, for the supply of the London markets. Ronalds' Gooseberry Pippin is quite distinct from the above, being a fine dessert Apple, ripe in November and continuing till February, but it is now rarely seen.

Onion Attacked by the Grub (E. B. M.).—Your Onions are being destroyed by the maggots of the Onion fly (*Anthonomya ceparum*). As soon as the presence of this insect is detected all the plants attacked, which are easily known by the leaves fading, should at once be pulled up and burned, giving the beds a good supply of lime water, which may be made by placing a peck of quicklime in a tub and pouring over it thirty gallons of water. Stir it well up and allow it to stand twenty-four hours. A dressing of soot is also a good application, and so is a strong solution of soap-suds. The best remedy, however, is to apply soot to the ground before sowing the seed, or a light dressing of gas lime, half a peck being sufficient for a square rod—30½ square yards.

Hen Manure (Idem).—Fowl dung is a very valuable manure, especially for soil such as yours—i.e., of clayey nature. It should be used in less proportion than other manures, and is best applied mixed with an equal quantity of soil. It is suitable for every description of vegetables.

Lemon-scented Verbena (W. L.).—The botanical name of this plant is *Aloysia citriodora*; it is also referred to the genus *Lippia* by some authors. Occasionally the leaves have been used as tea or to afford a flavouring to various articles of confectionery.

Culture of Fadyenia prolifera (N. G.).—This curious little Fern requires the temperature of an ordinary exotic fernery, or the cool end of a moist stove. It succeeds in a compost of peat and sand with abundant drainage, a wide shallow pan being best suited for it, as the long narrow fronds can then extend freely. When the young plants are produced at the point they will soon root in the soil, and may be either separated or allowed to remain, the latter being generally preferred, as they impart a peculiar appearance to the plant. It is usually found advisable to cover the plant with a bellglass to preserve an equable temperature and moisture about it.

Vines in Pots (T. S.).—If, as you say, the position the Vines now occupy is too shaded by all means remove them to the orchard house mentioned, training

the rods where they will be fully exposed to the sun in order to ripen the wood. When the leaves commence changing colour place the Vines out of doors, securing the rods to the wall to ensure their being thoroughly matured. It is a good plan to stand each pot on a brick to prevent worms entering, and if the plants are to remain outside during the winter surround the pots with coal ashes, which obviate the danger of frost breaking the pots.

Culture of *Oncidium Papilio* (X. Chester).—This peculiar but attractive Orchid is usually treated as an epiphyte, being grown upon a block of wood either suspended from the roof of the house, or with one end placed in a pot of peat and sphagnum well drained. A winter temperature of 55° to 60° suits it very well, allowing a rise to 10° above the last-named temperature during the summer, shading from the sun, and carefully supplying water both in the growing season and when at rest. The pseudo-bulbs must not be allowed to shrivel at any time, as considerable injury will result to the plant, from which it rarely recovers satisfactorily.

Oyster Shells for Garden Purposes (G. O. S.).—We have employed the shells rather extensively both crushed and calcined. For crushing them when small quantities only are required, an iron plate and an ordinary heavy hammer are sufficient, whilst for larger quantities a mortar will be needed. To effect the calcining an oven or a kiln is necessary, so that by subjecting the shells to strong heat they will be disintegrated. In this state they may be used for all purposes similarly to lime, especially for fruit trees.

Wintering East Lothian Stocks (R. B.).—The best time to sow the seed is early in August. When the young plants produced have formed two or three leaves they should be potted three around the sides of a 3-inch pot in rather gritty loam. Before severe weather commences have the pots plunged in coal ashes, and the plants covered with a frame or handlight, air being admitted freely in mild weather, and protection afforded over the lights.

Erythrina Crista-galli Losing its Lower Leaves (John Pearson).—The lower leaves and flowers frequently fall when the plant is grown in too warm and dry an atmosphere, and is not well supplied with water. Keep the plants in a light position, and syringe daily to check red spider, and when the plant is growing freely afford weak liquid manure liberally.

Tuberous Begonia Treatment (Mrs. Webster).—The plants have no doubt received a check through being removed from the stove without being inured to the change. They certainly should not have been removed until they were coming into bloom, and the check is sufficient to account for their unsatisfactory condition. Place the plants in a cool house or pit, arranging them near the glass, affording shade for an hour or two at midday, and they will probably recover.

Peach Trees Shedding their Leaves (J. T. Sinclair).—The most probable cause is a sudden check, owing, we think, to the trees being allowed to become dry at the roots. There is, however, red spider on one of the Peach leaves and also on the Vine leaves, quite sufficient to account for their drying up and withering. Thorough syringings in the evening is the safest remedy, directing the water forcibly against the under side of the leaves. Nicotine soap at the rate of 3 ozs. to the gallon of water will destroy the pests, applying it at a temperature of 90°, washing it off the following evening if applied to the Vines. Add a little guano to the water for the trees in pots, about an ounce to a gallon, and before watering the borders sprinkle a little of the same over them.

Peach and Nectarine Leaves Perforated (E. S. A.).—The holes are not caused by any insect, but are due to scorching, which may have arisen from the sun acting powerfully on the leaves whilst wet, which destroys their tissues. There is no trace of scale on the leaves, which are small and thin in texture, and certainly would be better for more ventilation. The point of the shoot of the Nectarine is infested with red spider, the remedy for which is frequent forcible syringings or the application of an insecticide. Neglecting to syringe is the cause of its present condition. Caterpillars have caused the injury to the Pear leaves. They will generally be found on the under side of the leaves or rolled in them. A solution of soft soap will destroy them, and so will most insecticides, but hand-picking is the surest, although a tedious remedy.

Bouvardia Treatment (N. D. S.).—The best plan is to strike cuttings early in the year, grow them on, and plant them out in May in a pit or frame containing good rich soil. Supply water liberally, and lifting and potting them in September. To ensure their flowering in winter they should have a light position in a temperature of 55° to 65° artificially, and 10° to 15° more from sun heat. The plants probably are not in a healthy state at the roots.

Eucharis amazonica not Flowering (Exeter).—The plants having yellow leaves indicates ill health, no doubt due to the roots being in bad condition. Turn the plants out of the pots, remove all the soil not occupied with roots, and repot in good fibrous yellow loam, keeping the bulbs about 2 inches beneath the surface. Syringe freely, only keeping the soil moist until the plants start into growth then supply water abundantly, and when in free growth liquid manure will be beneficial. In potting good drainage must be provided, making the soil moderately firm. Shade from bright sun for a time, and if a bottom heat of 85° to 90° is at command it would facilitate the rooting. After growth has ceased place the plants in the coolest and driest part of the stove but in a light position, and water only to prevent flagging. After subjecting them to this treatment for a couple of months remove them to a warmer position, and encourage growth by a moist atmosphere, copious supplies of water, and bottom heat.

Grapes Scalded (T. N. A.).—Lady Downe's is a variety particularly liable to have the berries scalded, and even experienced cultivators find it difficult to prevent. Avoid a low night temperature, 65° to 70° being safe, ventilating night and day, increasing the supply of air early in the morning as the sun gains power. If attention to those matters fails to produce any beneficial effect the glass may be lightly shaded with limewash, which can be removed when the stoning period is past.

Treatment of Fuchsias (P. S.).—The cultural particulars on page 2 of the present issue will probably meet your requirements. Fumigation is no doubt needed, and probably the plants have been allowed to become dry at some time.

Names of Plants (A. M. B.).—The specimen you previously sent was too crushed to be recognised, but from your description we should think it must be the common Stonecrop, *Sedum acre*. (W. J.).—1, *Bougainvillea glabra*; 2, *Tecoma stans*; 3, *Adiantum trapeziforme*; 4, *Adiantum macrophyllum*. (W. R.).—Both specimens were much crushed, but the long flower resembles *Crinum capense*, the other is quite unrecognisable. (E. M.).—1, *Mimulus cardinalis*; 2, an *Oenothera*, but so withered as to be undeterminable; 3, *Ranunculus acris flore-pleno*; 4, *Hesperis matronalis*. (A Young Gardener).—Materials in bad condition though carefully packed. 1, *Galium saxatile*; 2, *Potentilla reptans*; 3, *Lyebnis viscaria*.

COVENT GARDEN MARKET.—JULY 6.

THE prices and supplies continue very similar to those quoted last week. Strawberries being still very abundant.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1 sieve	0 0 to 0 0	Melons	each	2 6 to 4 0
Apricots.....	box	1 6 3 0	Nectarines.....	dozen	6 0 10 0
Cherries.....	1 lb.	0 6 1 0	Oranges	100	4 0 8 0
Chestnuts.....	bushel	0 0 0 0	Peaches	dozen	6 0 20 0
Figs.....	dozen	6 0 9 0	Pears, kitchen ..	dozen	0 0 0 0
Filberts.....	1 lb.	0 0 0 0	dessert	dozen	0 0 0 0
Cobs.....	1 lb.	0 0 0 0	Pine Apples	1 lb.	3 0 4 0
Gooseberries ...	1 sieve	2 6 3 6	Strawberries ...	per lb.	0 4 1 0
Grapes	1 lb.	3 0 8 0	Walnuts	bushel	0 0 0 0
Lemons.....	1 case	12 0 18 0	ditto	100	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms	punnet	1 0 to 1 6
Asparagus	bundle	2 0 5 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney ...	100	1 0 1 6	Onions	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling	quart	0 0 0 0
Broccoli	bundle	0 9 1 6	Parsley..... doz.	bunches	6 0 0 0
Brussels Sprouts..	1 sieve	0 0 0 0	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Peas	quart	1 0 1 6
Carrots.....	bunch	0 4 0 6	Potatoes	bushel	3 9 4 0
Capsicums.....	100	1 6 2 0	Kidney	bushel	4 0 4 6
Cauliflowers	dozen	0 0 3 6	Radishes..... doz.	bunches	1 6 2 0
Celery	bundle	1 6 2 0	Rhubarb	bundle	0 4 0 6
Coleworts.....doz.	bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 8	Scorzoneria	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale	basket	0 0 0 0
Fennel.....	bunch	0 3 0 0	Shallots	1 lb.	0 3 0 0
Garlic	1 lb.	0 6 0 0	Spinach	bushel	3 0 0 0
Herbs	bunch	0 2 0 0	Turnips	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



POULTRY AND PIGEON CHRONICLE.

THE DISEASES OF SHEEP AND LAMBS.

(Continued from page 542.)

IN concluding our remarks last week upon the subject of diseases in sheep being caused by the use of artificial manures, as supposed by some persons, we stated that the mistake made was by accepting a coincidence instead of a cause. It is, however, a matter of so much importance to the home farmer to understand whether this is or is not a possible question that we ask, Is it possible that artificial fertilising substances such as superphosphate, guano, and nitrate of soda can act upon the health and constitution of the animals which consume the roots produced by these materials, seeing that manures are changed into compounds adapted for feeding and fattening the stock? This matter is, in our opinion, decided at once if we look to the analysis of these manures, and also the composition of roots—such as Mangolds, Swedes, and Carrots—as given by Dr. Voelcker in his analysis of the different items. It is however, we fear, too often the case that negligence or ignorant management of sheep, especially in feeding ewes during pregnancy, is attributed to causes of such as we have above alluded to, instead of admitting that any mistakes have been made in the management of the stock.

We have now before us important questions, the investigation of which will show how formidable are the diseases to which we shall refer, with the view of describing both cause and effect, which cannot be too well understood by all persons whose time and capital are employed in the rearing and feeding valuable animals like sheep and lambs. One of the most disastrous diseases which we have to contend with of the present day is the lameness of sheep stock, which shows itself in many different ways. Nothing but considerable experience on the part of the home farmer and his shepherd can at all times distinguish the nature and cause of the outbreak when sheep are first taken or attacked with lameness, for in the early symptoms "foot rot," which is a distinct disease from the "epidemic lameness" or "foot-and-mouth disease," the symptoms at the first outbreak are often so

similar that even the best-informed veterinary professors frequently make a serious mistake in characterising these complaints. The consequences of such mistakes under the present rules and regulations as to the latter, as issued by the Privy Council, are often disastrous to the farmers and others engaged in the sale and purchase of sheep. It is no uncommon thing for the local authorities in certain districts under the report of the veterinary to prevent the movement of stock and declare a district infected with foot-and-mouth disease, when there are strong reasons for believing that the sheep were merely suffering from foot rot aggravated, as it often is, by internal fever, and showing not only lameness in the feet, but also similar affections in the mouth to that which is observed in the foot-and-mouth disease. In our practice and management of sheep we have seen these aggravated and fever symptoms of foot rot in the animals many years before the great outbreak of foot-and-mouth disease in 1839 and 1840, at which time the sheep stock as well as cattle suffered more or less in every district of the kingdom. It was so general that the farmers in selecting their sheep for breeding, both ewes and rams, had but little choice without breeding from infected animals, and thus it has become unfortunately hereditary. It has therefore now for many years been difficult to avoid breeding from animals suffering from lameness or tainted through constitutional or blood diseases; nor must the home farmer be misled by the disappearance of the disease or defect during one or two generations, for not only does it appear again with all its pristine force in consequence of constitutional or hereditary peculiarities, but also by the action of the atmosphere and the nature and condition of soils whereon the animals are bred and fed.

So far back as the year 1826 we never could obtain the Dorset and Somerset horned sheep direct from their native counties without their being attacked with foot rot on their arrival upon the farm for lambing and winter feeding. In our endeavour to avoid this we for some years kept no sheep at all between the 1st of May and the 1st of October; but it made no difference, for never in any instance did these kind of sheep remain free from lameness beyond a fortnight after entry on the farm, thus showing that the foot rot—not only appearing in the foot, but also attended with fever—had become hereditary in this sort of sheep, although the symptoms varied greatly in some seasons. At that period, and before the great outbreak of foot-and-mouth disease in 1839 and 1840, we always considered that in buying Hampshire Downs, South Downs, and other breeds from various counties, except the south-western, that we were safe against foot rot attacks, unless the stock were brought into contact with flocks infected with that complaint.

Let us contrast that period with the present time, and who can say that we are safe from lameness, call it what we will, either "foot rot" or constitutional and hereditary foot-and-mouth disease, appearing in our flocks of sheep? Nor is it confined to any particular breed or district, as it was principally before 1839, showing, in our opinion beyond dispute, that the lameness in sheep, with all its varied accompanying symptoms, is quite beyond our control as regards the outbreak, but on its appearance the symptoms may not only be mitigated, but so far cured as to be enabled to feed or fatten both sheep and lambs with profit.

We now proceed to explain, through our experience and the experiments of others, the mode and management necessary to avoid the extraordinary disasters which we have known to occur under neglect and in the absence of precautionary treatment. At the same time we shall take care to allude to the new remedies lately advised for use. The precautionary treatment to which we refer consists not only in feeding the stock on the driest soils during the winter months, but also of using known effectual remedies at the earliest appearance of the disease, and at the same time to regard the necessity of removal and absolute separation of those animals under treatment from the sound and healthy portion of the flock. Epizootic foot rot or murrain consists in inflammation of the skin connected with the hoof, the formation of blisters upon the heels and between the digits, which in three or four days break and expose deep red inflamed and tender surfaces; these for a short time discharge a thin serous fluid, in a few days ulcers begin to form, and the discharge of a white offensive matter commences. The two fore feet are those generally affected, frequently, however, extending to the hinder ones, especially when neglected. In cases of epizootic foot rot no time must be lost in applying a remedy, for the ulcerative stage having commenced the groundwork of a disease may be laid that will often require weeks or even months to remove. As soon as the sheep appear lame our old plan was to immediately remove those animals attacked to a dry and clean situation, and after cleansing the foot from all dirt to apply with a piece of tow a lotion composed of two

drams of blue vitriol dissolved in a pint of water, keeping the tow in position by twisting one end into yarn and tying it round the foot. This remedy is safe, but the sheep should be examined daily, dressing the feet of those attacked immediately.

Where it is not convenient to separate the stock, especially in the case of ewes and lambs whilst folded upon Turnips on arable land, we have a catch coop always made ready in the field, to which the flock may be driven daily, and receive there the attention required. By this plan of daily attention and treatment we have kept under control the most formidable and difficult cases, and for a long series of years have never suffered a loss of 6*l.* per head on the flock. In some obstinate cases we have found under the most strict and continuous attention that the inflammation will spread under the hoof, suppuration ensuing, in which case the undermined part of the hoof should be carefully removed by a sharp hook-shaped knife, with a strong but narrow blade, and the vitriolic lotion applied. In case of blood flowing the application must be deferred for an hour or two, and the animals after the feet have been dressed should be allowed to stand quietly in a pen well littered with dry straw for several hours, because if they are turned out immediately on the dirty ground the dressing will prove ineffectual.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Some horses will still be required in connection with mowing the grass, carting and stacking the hay. Nearly all the fallow land intended for roots has now been seeded, for although there are many acres of land to be seeded with common Turnips, yet these principally consist of fields which are or have been under green crops, such as Trifolium, Vetches. Such crops, where grown on the sandy loam or mixed soils, are nearly sure to leave a portion of Couch grass after them. If, however, it does not amount to more than a bunch here and there it need not hinder the ploughing and seeding immediately; for in case our old system is adopted of setting the women to fork out the tufts of Couch either before ploughing or after they show up when the land has been seeded, it will be easily got rid of. The importance of this plan is that the seed time is not delayed; and when the land is ploughed, worked down, and seeded the same day a season is secured, for let the weather be either very dry or very wet afterwards the best seed time has been obtained. The haying time, up to whilst we write, has been rather catching, which is very unfortunate considering that the crop, whether upon arable or pasture land, is one of the lightest we can ever remember. In the event, therefore, of the hay being stained and damaged by rain, it should be remembered that even if damaged by rain it is not so serious a matter as stacking whilst in a damp state, for nothing can retrieve such a mistake. We therefore recommend the home farmer to stack his hay dry without reference to the time he has to wait to obtain it in that condition; for although it may be ever so seriously injured by rain, if at the time of stacking it is quite dry it will always be valuable fodder if spiced or flavoured with some of the articles of which there are many now offering by different parties. It is not our province, however, to recommend any vendor in particular, but we name Bowick & Co., Simpson's, Myers', Thorley's and others. The home farmer has therefore only to use them as directed whilst building the rick of hay, and he may calculate upon an improved article which the cattle will eat readily, and will pay well for the cost and trouble of applying the spice. It is, too, very important as compared with the plan we formerly adopted of applying salt to damaged hay, which we must say we found comparatively worthless to that treated with the flavouring materials of the present day. It is not only in the case of hay which has been injured by bad weather that we would apply the spices or flavouring materials, but we would also use them in stacking hay the produce of poor soils; for in these we find but little nutriment, and therefore these spices, &c., can be obtained and used for the purpose of improving the feeding value, as well as furnishing an agreeable aroma, enticing to the cattle.

Hand Labour. both of men and women, will now be required in connection with the various kinds of work we have just alluded to; but more especially in the cutting of grass and the making of hay in the irrigated meadows, where it is difficult to work machinery amongst the water-carriers and drawing-trenches. Planting Cabbages, Kale, and Broccoli will still be required on the land as fast as ploughed after green crops, or the plants may be laid along the furrow and ploughed in, if care is taken to employ a trusty man to follow, whose business will be to release any plants buried entirely and to partially cover those which were not buried deep enough.

Live Stock.—The sales of rams of the different breeds of sheep will soon begin, and the home farmer will have to select his male animals for breeding purposes, not only for sheep but for his dairy cattle also. We must here tell him that by his own intelligence, or through the experience of others, he has both the means and power of controlling and modifying the form of all the animals which he requires on the farm, because such modified forms can be handed down to the progeny. Being departures from the primitive or natural type, the form can only be maintained by assiduous attention

on the part of the breeder, not only because the qualities of the male animal can be brought to bear upon larger numbers, but also because of his own special endowments it is best to seek for improvement of form and quality through him. The home farmer must remember, too, that qualities both of the form and also of the character become hereditary in proportion to the frequency of their repetition in past generations; but that it is dangerous to breed from any animal with important defects, however high its pedigree. We must also state that healthful well-formed animals without hereditary taint, even if closely related, may be safely permitted to propagate their kind, provided the practice be not continued through many generations. It should also be borne in mind that young animals should be first mated with the best of their own kind, in order to avoid the reappearance of stain in any future progeny. Horses are an important part of the live stock, especially when we breed our own, and many of the above observations apply with equal force to horses as well as cattle; but of course there are other points to be considered, as between working animals and those which only furnish food for man. The management of horses at this time of year is, in the hands of some parties, called a very simple matter—merely to feed them well and turn them out at night time either into littered yards with Clover in the cribs or turn them to graze in pasture or on the arable land upon Clover, and Saintfoin. We, however, cannot say that we approve this plan, for in our changeable climate we often get frosty or very cold nights, and when horses have worked hard during the heat of the day—frequently in an excited state of perspiration—the change is too great between their state and condition at day and at night time. We have always preferred an airy stable with boxes for the animals 10 feet by 12 feet, both for their health and freedom from accident, and at the same time for obtaining the full value of their manure.

VARIETIES.

ANGORA RABBITS. — “A RABBIT FANCIER” writes to us as follows—“Having for several years taken a great interest in rearing and breeding Rabbits I send you a few particulars, which I think will be interesting to some of your readers, about a pair of Angora Rabbits I now have, the habits of which I consider peculiar and certainly very uncommon for this class of pets. The animals have never been separated. There is no fear of their young being killed. They have been kindled all over the hutch, but the male on perceiving this immediately takes them up and carefully places them one by one in their nest. When there he watches over them with paternal care, and guards them from every intruder by stationing himself before the corner where the nest is. When I cleaned the hutch out for the first time I put the young in a basket; no sooner had I done this than he immediately jumped on the basket, and stayed there until the young were removed again to their hutch. This is the first time I have kept a pair together. I believe that all Rabbits have an intense affection for their young; and I conclude from the above facts that it is solely through fear that a doe when left by herself sometimes destroys her young.”

— THE AMERICAN CHEESE TRADE.—It is evident from the figures compiled of the manufacture and sale of cheese that the home trade is rapidly growing. This growth is estimated at from 12,000,000 to 15,000,000 lbs. a year. The conditions that govern the cheese trade are different from those that influence the sale of butter. Only a dozen States out of the thirty-three produce as much cheese as they do butter. The *per capita* consumption of cheese in this country is now between 4 and 5 lbs., but is rapidly increasing. The combinations and competitions of freight lines make a difference in the price of the article, but American cheese is handicapped about 2½ cents a pound when placed on the Liverpool market in competition with the English product. In 1880 over 40,000,000 lbs. of cheese were sent out of the country, Great Britain taking 65 per cent. of the quantity. The typical cheese market in the United States is at Little Falls, N.Y.; Elgin, Ill., comes next, and St. Albans third in the list in importance. New York receives more than one-half the cheese products of the country; Chicago comes next.—(*The Prairie Farmer*.)

— POINTS OF A GOOD COW.—A practical agriculturist gives in the *Irish Farmer's Gazette* the following description of a good cow:—“The muzzle should be rather large, but the head small and bony, with the face dishd and wide between the eyes; horns rather small, and amber colour; ears small, thin, and yellow; neck thin and long, with clean throat; neck will drop a little in front of shoulders, making what I call a ewe neck; shoulders sloping, not heavy, but

lean or bony; back level, with good width of hips. The backbone should be rough or loose-jointed. I consider this one of the best points. As you move your hand along the back the joints seem to be further apart and open. Barrel broad and deep at the flank, with the back ribs wide apart. Rump long and rather wide; thighs long, thin, and wide apart, with legs short and bone fine; hoofs rather long, but small; milk veins large, and where they enter the body you can stick your fingers in. Udder well forward and well up behind, with four good large teats set square and wide apart. Udder soft and pliable, and not fleshy, so that when the milk is drawn the udder is nearly gone. Tail long and slim, with a good switch. Skin should be soft and yellow, with a good escutcheon, and mild disposition. The cow filling the above description, or nearly so, I have always found a good one.”

POULTRY AND PIGEONS

PRACTICAL SCIENTIFIC BREEDING.

(Continued from page 522.)

FEEDING.

ALTHOUGH it may seem to our readers that the question of feeding does not properly come within the scope of an essay upon “breeding,” yet the two subjects are so closely connected that the greatest amount of trouble as to breeding will be wasted unless proportionate attention be given to the question of food.

We have sometimes been amazed at the difference between chickens hatched from the same parents and at the same season of the year, but differently treated as to food. We do not refer to cases where the youngsters have been starved, or half starved, and otherwise neglected, but to instances in which food has been abundantly supplied, and the fault has been rather in the quality than the quantity.

Before entering upon the discussion of the best method of feeding the growing birds, a few words as to the treatment of the breeding stock may not be out of place.

It is obvious that the chief points to be borne in mind here are, that the supply of food be such as shall promote a general, healthy, and vigorous state of the constitution, which implies a freedom from excessive fat, and also such as shall supply the necessary materials for the formation of eggs.

The egg of the domestic fowl when deprived of its shell consists of 71¾ parts of water, 14 parts of albumen or flesh-forming material, 13 parts of fat, &c., and 1¼ part of phosphates, &c. The proportion of flesh-forming material to fat is far larger in the white than in the yolk, but that is not of importance for our purpose. The shell of the egg is mainly composed of carbonate of lime or hard chalk.

The secretion of an excessive amount of fat by the hen has by experience been found to be a hindrance to laying, but once hens are in full lay a larger proportion of fat-forming food becomes necessary in order to supply materials for the eggs.

The following table, the chief parts of which were first compiled by Mr. Tegetmeier, but which has since been added to by Mr. Lewis Wright, and in which we now further include bran, carrots, parsnips, turnips, and onions, will be useful for reference:—

There is in every 100 parts of	Flesh formers.	Fat or oil.	Starch.	Bone formers.	Husk or fibre.	Water.
Beans and Peas	25	2	48	2	8	15
Oatmeal	18	6	63	2	2	9
Middlings, Sharps, or Pollard	18	6	53	5	4	14
Bran	16	4	43	6	17	14
Oats	15	6	47	2	20	10
Wheat	12	3	70	2	1	12
Buckwheat	12	6	58	1½	11	11½
Barley	11	2	60	2	14	11
Indian corn	11	8	65	1	5	10
Hempseed	10	21	45	2	14	8
Rice	7	A trace	80	A trace	—	13
Potato	6½	A trace	41	2	—	50½
Onion	1½	0½	4½	0½	—	91
Parsnip	1½	1½	8½	1	—	81
Carrot	0½	0½	5	1	—	89
Turnip	0½	0½	4	1	—	93
Milk	4½	3	5	0½	—	86½

Cabbage, cauliflower, and broccoli, though containing 90 per cent. of water, are otherwise very rich in flesh-formers, and may,

therefore, with great advantage be mixed with other feeding which is deficient in this respect.

Dari, which has been recently introduced as an article of poultry food, contains eight or nine per cent. of flesh-formers.

There can be no hard-and-fast rule laid down as to feeding the breeding stock. The Asiatics are so very different from some of the other breeds, such as Spanish, Hamburgs, &c., that a course of feeding which is suitable for these latter sorts would be far too fattening for the Asiatics. The food must be selected according to the variety kept, and must also be varied to suit the season of the year. Indian corn, for instance, which contains a large proportion of warmth-giving materials (fat, starch, &c.), should be chiefly used in winter, and may be given to the breeds which are not apt to run to fat in larger quantities than the birds of fuller habit. It may also be given with less danger of evil results when the hens are in full lay than at other times. A change of food is beneficial, and for this reason mixtures of whole grain are not to be recommended. It is far better to give one grain for a time, and then change to another, than to give a mixture of several.

With regard to soft food the case is different. Here the means of varying the character of the food are numerous, and a judicious blend of meals, with potatoes, parsnips, turnips, &c., may with advantage be resorted to.

The soft food should, when possible, be cooked, just as much water as the meal will absorb being used. Cooked food is much more easily assimilated than raw, and the mixture of a moderate proportion of water helps the process of digestion. A liberal supply of fresh green food is indispensable, and if the birds be confined a small portion of animal food may be given with advantage.

The supply of gravel or sand to keep the gizzard at work, and of lime rubbish in some form to make the shells for the eggs, must not be omitted.

The feeding of the chickens has, as we have already said, an important bearing upon their maturing early or late, and consequently upon their ultimate size. Where size is an object food containing too large a proportion of flesh-formers must, after the first two or three months of the chicken's life, be withheld or given only in conjunction with other food containing bone-making materials. Bone-meal has of late years been largely used for mixing with chickens' food, and may with advantage be used from the first and continued until the birds reach maturity. About one-tenth of it added to the soft food is sufficient. During the first three months of the chick's life no apprehension as to forcing the birds to too early a maturity need be felt, and food containing plenty of flesh-formers, as also a moderate supply of meat, may be given.

Oatmeal should at first form the chief food, varied with a mixture of Indian meal and middlings; later on the quantity of oatmeal must be diminished and bran may be added, while after three months buckwheat, wheat, or barley may be given, as grain with barley-meal, middlings, bran, and Indian meal as the chief materials for forming the soft food. Pea-meal in moderate quantities is good at first, but should be avoided afterwards as being too stimulating.

Where size is not an object, and early maturity is desired, a diet in which flesh-formers are largely present may be adopted throughout.

A word of caution may be added as to breeds in which largeness of comb is a disadvantage. Here especial attention to the exclusion of all over-stimulants from the food is essential. We have seen more than one first-rate Brahma cockerel spoiled by injudicious kindness in the matter of feeding. A few scraps of meat gathered from the lunch table have just been too much for a springing comb which was all right before, and the prize which would otherwise have been gained has had to go elsewhere.

The quantity of food and the number of meals to be given have been so often discussed in these columns that we do not think it necessary to deal with them here.

FANCIERS v. FARMERS.

ANYONE reading the article headed as above in your last issue would think that there is a certain number of persons who wish to decry everything in the way of poultry, more especially the Dorking fowl. As I believe I am one of those alluded to, for the reason that I have considered it a duty incumbent on me as one knowing for the last half century or thereabouts from actual observation, and also from those who kept the true Dorking, Sussex or Surrey fowl as it was called—the Dorking being the white variety of the latter two, and they otherwise being all one

breed—I feel, I say, it a duty to prevent if I possibly can the extinction of such breed, and its name, &c., being shifted on to a mongrel.

It has been stated by several that the Dorking was not a true breed. I affirm that it was as much a true breed as a Polish, a Cochin, or a Hamburg fowl—as much a true breed as in cattle is the Sussex, the Shorthorn, the Hereford, and others. I know from long observation of the different stocks of poultry of farmers in Surrey, Sussex, and Kent that the utmost care was taken to keep and preserve the breed pure, and I was a mere child when my father, who kept Dorkings before I was born, pointed out to me, while looking at fowls belonging to an uncle of mine, that the peculiarity of the fowl consisted much in its having a white leg and five toes; and I also remember my father saying (and it made a great impression on me at the time) that as far as he knew it was the only breed that had a white leg on a dark fowl, and often in later years have we talked about this particular breed—its size, quality, and general usefulness. Also, I have three uncles who were most particular to keep their stocks pure, besides other friends who prided themselves in their poultry. It has been stated, and which I say is inaccurate, that the Dorking is a composite fowl. If so, where did it get the white leg from? as I can confidently state that in the stocks of these birds that were kept by my family and others that I knew, I never saw any but pure white legs, and the form and quality for table purposes left nothing to be desired.

Again referring to cattle, the Shorthorn has what the present so-called Dorking fancier would call fancy points, such as the pure white nose, &c. It is bred solely for "table purposes," and yet no animal would be noticed in a Shorthorn class with a dark nose. The prizes are for Shorthorns, and not for a cross-breed. So in the Sussex classes of cattle; they all have their points of breed, and those points have been carefully kept, and yet in each and also other breeds grand results have been the consequence. Then why is the true breed of Dorking to be obliterated as a fowl, and crossed and crossed till it no longer has the points showing the pureness of the stock? A Booth or a Bates, taking the Dorking in hand as they did the Shorthorn, would have produced much finer results from the pure Dorking, keeping it pure by selecting the best and the best, and not crossing and crossing, and absolutely doing away with some of the most certain indications of the purity of the breed. I firmly believe that the birds of which I write are the actual descendants of those described by Columella. At least this I can say, and that most truthfully, the birds that I remember in my young days answered fully to the description he gives, and his accuracy of description is universally acknowledged.

In the article it is said "The praisers of the time that is past" declare that the Dorking of to-day is a miserable impostor. It has nothing to recommend it to any other notice than a general condemnation. It has black feet, it has big bones, it has coarse flesh, in a word it is everything that is bad." Now, sir, I must say this is a most unfair statement of what has been said, at least by myself. What I have said is that the fowls are not Dorkings; nor are they. They are mongrels, crossed and crossed to get size, which their combs, legs, carriage, &c., show. They are much coarser than the Dorking in flesh, as everyone knows, if he knows anything about fowls, that the larger the fowl the coarser the grain of the flesh must be, and they are much larger in bone; but I never have seen anyone who said they had black feet, therefore I dismiss this part as a wrong statement. I, nor anyone, I believe, ever said they were worthless, for some people like large coarse meat. What I said, or intended to say, was that they were not Dorkings, and as such were not entitled to be exhibited in a Dorking class more than a cross-bred in a Shorthorn class. It is quite true that I have seen the winners of prizes and much-landed birds that were not Dorkings at all. It is not a matter of conjecture on my part; I know it. A so-called Dorking which belonged to Mr. Fisher Hobbs took the prize at Birmingham, and Mr. Fisher Hobbs told me himself that it was a half-bred Cochin and Dorking. I know of many other cases (and when the proper time comes I shall declare them) where cross-breeds have won. If the prizes are for Dorkings, why are they given to cross-breeds? Neither in cattle, nor sheep, nor pigs are they so awarded, but the distinctive points of each breed are duly considered, and carried to the highest excellence. Why is the true white-legged Dorking to be stamped out? When you have got rid of the white leg of the Dorking fowl you have got rid of the only white-legged breed that I know of, and poultry shows were instituted to maintain the pureness of the different breeds. Again it said, "The successful Dorking fanciers of to-day assert that as table fowls their birds are better than ever they were, and there are not wanting independent witnesses to corroborate this view."

I contend for my own part that I am a perfectly independent

witness, and so are others I know. I neither exhibit nor sell; I know none of the fanciers, and if I did it would make no difference. I should judge their birds, not them. I have no wish to make enemies, but I must speak the truth to the utmost of my power, and I do not attack anyone; but I must say that I have often seen prizes awarded to fowls in a Dorking class that were decidedly mongrels. This I know, and to my sorrow, I never had any sooty-legged fowls in my yard until I bought some first-prize birds, and now I consider my stock utterly ruined. Yesterday the only bird left of my old strain was killed in mowing the grass. She had pure white legs, feet, and toe nails.

Again as concerns farmers. At Lewes only last week a farmer's wife asked me where to get some true-bred Dorkings, as she did not like the new style of bird at all for the farmyard. I could only answer, "I wish I knew."

One would be led to suppose from reading the following that it is only now, or since poultry shows were instituted, that there have been fanciers, I mean the intelligent fancier and breeder:—"Many of the useful qualities of a breed are doubtless sacrificed by the fancier in his efforts to attain perfection in standard points; but it must never be lost sight of that but for the fancier certain breeds, which are the most useful for the purpose of crossing-in with common fowls, would hardly have been produced at all." Why is it so requisite that there must be crossing? In cattle, sheep, &c., the more pure the breeds are kept the better the farmer considers his stock, and I know the old poultry fancier and breeder long before the shows were in vogue was the most careful of the purity of his stock, and quite as proud of them as if he won his cups or money. The poultry, Pigeon, and Rabbit fancier is not a creation of to-day. He existed long, long before my time, and it is to him we owe the different breeds that now adorn our farmyards. I will not make comments on other breeds of fowls as regards shows; but this I do say, that nothing to my mind has been more detrimental to the true Dorking—the old English, a fowl of world-wide reputation—than poultry shows and so-called fanciers.—HARRISON WEIR,

PESTS OF THE POULTRY YARD.

No one will keep fowls, no matter whether they be many or few, for long without finding out that numerous pests soon congregate about their houses and runs, and prove a source of much annoyance. Like the numerous pests of our gardens those of the poultry yard come in their seasons, and some which are injurious or destructive now may be harmless later on in the season. This applies particularly to young chicken pests, such as rats, hawks, jackdaws, and such like. Rats are a great pest to many poultry-keepers. At times they destroy much food, and when young chickens are about they are constantly on the alert, sometimes bolting off with them during the day, and killing numbers at night whenever they chance to get into the coop or house containing them. This is the case not only with chicks a few days hatched, but also with those which are some weeks old. Ducks, too, are always most liable to be destroyed by rats until they are quite half grown or more, and many are the complaints we hear respecting them and the extra labour it takes to secure them from being destroyed.

The best way to reduce labour and risk is to destroy the rats. Putting rat-proof houses up and allowing them still to exist is never satisfactory. Much can be done with traps; and poison used in the form of powder, so that they cannot carry it in the way of other animals, soon thins them. Those who have had most experience with them never allow a number to be gathered together before beginning their extermination, but they generally catch every one on its arrival.

Young chicks are not the only thing they destroy either, as I have known them to take eggs from under hens when they are set for hatching, and they have also taken eggs from the nests as soon as they were laid; in fact, for some time I had an old chap in my yard who appeared to know the meaning of the noise the hens made as they came from the nests, as I had to be very sharp or no egg was to be found. When this began at first I was inclined to think that somebody was stealing the eggs, but when I had found one or two drawn to a hole close by the thief was soon destroyed.

Hawks only pick up chickens when very small, and in districts where they are plentiful they must either be shot or the chicks kept under protection until they have gained some size; but jackdaws are much worse than hawks, and lately I have lost several of my best chicks by them. These birds build plentifully in a large wood close by, and when their young are in the nests they will carry everything to them. When once they begin on a brood of chickens they seldom stop until all have been destroyed, unless the chicks are removed or the thieves killed. When the mothers

are cooped up and the chickens running outside they are more liable to be taken than when the hen is allowed to walk about with her brood, as she, if a good one, is generally too strong for a jackdaw.

It is a curious fact that it is only the head of the chicks that these depredators take, as they always leave the body entire behind them. When this was done with some of mine I shot the first jackdaw I came across, and hung up its body as a warning to its race close by the coop where the chicks were. When I went back again I found another chicken's head gone, so that this plan failed; but when the jacks were cut up and thrown in pieces about the scene of their crimes no more of them were ever seen about that place for the season.

Some say that cats are a pest about the poultry yard, but if they are accustomed to the fowls and the fowls used to them their presence is an advantage, and frequently saves much damage from being done to the fowls by the subjects we have just mentioned; and they also keep mice away, and these little creatures, although not having confidence to attack a fowl, are capable of making a larger hole in the grain sack than most of us like.

I was rather astonished the other day when one of the keepers told me that he knew of a fox's "nest" little more than a rifle shot from our poultry yard, as foxes are pests of the greatest magnitude, and the largest fowls are no safer from them than the smallest. In such cases open roosting must not be encouraged.

Insects may also be included as pests of the poultry yard, but when these become so plentiful that they do injury to the fowls their owners or those in charge are much to blame, as it is only through neglecting the common rules of cleanliness that harm can come of this, and the remedy is very apparent.—M. M.

OUR LETTER BOX.

Chickens Ailing (*W. Booth*).—We can hardly tell from your description what is the ailment of the chickens. Is there any ulceration of the mouth or throat? If so burn it with lunar caustic every three days until the ulcers disappear. We fear, however, that it is a general low state of the system from which your chickens are suffering. Is their run sweet, or have many fowls been upon it? Try the effect of more stimulating food, change the Indian meal for barley meal or oatmeal, and mix with boiling water or cook the food for a short time; give also some bread and ale once a day. You say rain water is given them. That may be the cause of the mischief, as this hot weather may have made the rain water foul. Put a little of McDougall's fluid carbolate in the water. Write again with further particulars.

Cow in Calf (*A Gardener*).—From our own experience we would say that there is nothing unusual in the condition of your cow, and that the probability is she is in calf.

Prickly Comfrey—*Symphytum asperum* (*T. James*).—It should be grown in deep highly manured soil, and though it is quite hardy a good covering of manure placed round the crowns in winter is very beneficial, the manure in the spring being pointed in with a fork. Prickly Comfrey cannot be grown too quickly, for if grown slowly by lack of nourishment it is apt to be bitter; cattle do not always eat it readily at the first, but they generally "soon take to it," eat it freely, and thrive well. It is cut and given to the cattle in a green state, or partially withered, and in rich, deep, and rather moist soil it yields very large crops of produce. Divisions of the roots may be planted 3 feet apart, from November onwards, in well-enriched soil; indeed, the preparation of the soil and mode of culture usually applied to Rhubarb are precisely suitable to it.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
1881.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
June.		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
July.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun. 26	30.163	62.3	56.8	N.W.	59.2	73.6	48.6	127.3	44.8	—	
Mon. 27	29.962	60.5	56.0	S.	59.9	63.6	54.4	81.6	52.5	0.040	
Tues. 28	30.051	63.4	55.6	W.	59.2	70.8	49.5	128.8	45.3	—	
Wed. 29	30.229	63.1	55.7	N.W.	59.7	73.4	49.3	129.0	43.6	—	
Thurs. 30	30.295	64.7	56.5	S.W.	58.4	75.5	48.7	130.2	42.6	—	
Friday 1	29.988	71.4	61.9	S.E.	61.4	82.6	54.1	129.2	48.8	—	
Satur. 2	30.094	67.6	59.7	N.W.	63.4	79.7	57.6	126.1	53.6	—	
Means.	30.113	64.7	57.5		60.2	74.2	51.7	121.7	47.3	0.040	

REMARKS.

26th.—Very fine; bright sunshine throughout.

27th.—Cool, overcast; slight showers.

28th.—Fine, with a good deal of bright sunshine, although at times overcast.

29th.—Fine and bright.

30th.—Warm; very fine pleasant day.

1st.—Hot, very fine day, stormy appearance towards evening; fine starlight night.

2nd.—Fine, but at times very cloudy.

A fine dry week, with the temperature slightly above the average.—G. J. SYMONS.



14th	TH	The National Rose Show, Sheffield. Chiswick Horticultural
15th	F	Galloway Rose Show. (Show.
16th	S	Wirral Rose Show, Alexandra Palace Gooseberry Show, and
17th	SUN	5TH SUNDAY AFTER TRINITY. (West Kent Show.
18th	M	
19th	TU	Carnation and Picotee Show, Kensington.
20th	W	

HERBACEOUS AND ALPINE PLANTS.

OUR purpose in penning these remarks is to assist readers in selecting the choicest and best species and varieties obtainable. The mistake hitherto made by many amateurs has been in their planting any and every species they could obtain simply because it was fresh. By this system the borders became crowded with a host of plants producing inconspicuous flowers, whence, instead of a bright and continuous display, disappointment is the only return. The employment of hardy plants in the flower borders and the shrubbery borders has increased during the past few years, and if a judicious selection is made from the immense numbers of plants now obtainable the fashion must become, and remain, popular, because a beautiful display may be maintained almost throughout the season, from which flowers for vases, for table decoration, bouquets, and buttonholes may be constantly gathered without the slightest injury to the plants. These results are, moreover, obtainable with comparatively small cost, even by those having nothing but an ordinary villa garden and without any glass structure.

In the cultivation of perennials soil is of the first importance, and for many of the choice alpine kinds situation also must be studied. In the first place the borders must be well drained, and if the natural soil is poor and exhausted it should be removed or incorporated with some rich and fertile material. The best we consider is a combination of loam, leaf soil, and well-decomposed manure, to which the admixture of some sharp river sand or the grit from road sweepings will be of great assistance. There are many peat-loving plants, but the soil just named will be found the best for a general foundation. Those plants requiring peat or limestone grit can easily be accommodated with their peculiar wants at the time of planting.

In gardens of sufficient size a well-made rockery is a most interesting addition, but in small gardens the attempt should not be made, for we have never seen good results in such places; besides, it is really unnecessary, there being a great number of hardy alpine plants that may be grown in clumps in the borders with ease, especially if a few pieces of rock or large stones are laid round them. But where space will permit the rock garden when properly constructed is a never-failing source of pleasure; indeed many an old wall may be readily converted into a lovely rock garden by the judicious planting of *Sempervivums*, *Sedums*, *Saxifragas*, *Aubrietias*, *Wall-flowers*, *Drabas*, and similar plants. If a situation is to be selected for the construction of rockwork, choose a place in which the alpine plants when in their positions shall be sheltered

or screened from the morning sun during summer. A mistake is frequently made by amateurs respecting the supply of water to alpines. Many people imagine because these plants often grow on and amongst bare rocks and stones, that little or no water is necessary to their existence; nothing, however, is more erroneous, for alpines are thirsty plants and during the summer months should be watered liberally. The rockery should not be made to display itself, but should be so constructed that every nook and every ledge should form a resting place for some particular form of vegetation to grow upon or trail over, while at the base sundry nooks may be converted into bogs for the accommodation of such plants that require this particular care, and if a small pool of water is available there are numerous aquatics which will amply repay for the very little care they require.

In planting the herbaceous borders strict attention is necessary in the arrangement according to the natural heights, and in placing the plants so that they are not in straight rows from front to back, and so to intermix the plants that all the year round the border shall be gay. Deciduous and evergreen kinds should also be carefully interspersed in order that a general effect may be produced. The dwarfier kinds which will be front-row plants should be slightly elevated, and, as before remarked, have some good-sized pieces of rock placed round them, as this keeps the crown of the plants from decaying in winter. Thus treated they will soon form beautiful clumps. In the matter of colour our readers will scarcely need reminding that two shades of the same colour should not come together. Some mistakes and failures are sure to be made the first year, but these must be carefully noted and remedied in autumn. The latter plants, or, indeed, the dwarf kinds also where they require it, must be carefully staked and tied to keep the borders orderly and to prevent the shoots being broken down by wind or rain; but by no means be lavish with artificial supports, for the less they are used the more natural everything appears. Where seeds are not required pick off the capsules as soon as the flowers fade, and if seeds are to be saved thin-out the capsules to prevent undue exhaustion of the plants. When the seed is ripe sow it at once. We prefer this plan to the one usually adopted of storing it until the following spring.

A few words respecting the manner of keeping the flower borders may not be out of place. All the year round weeds must be kept down; especially during the summer months must the hoe and rake be employed, but it is in the late-autumn treatment in our opinion lies the secret of success or failure in the cultivation of herbaceous plants. In the majority of gardens the plants are cut back and the borders dug over so as to make all neat by Christmas. This digging or turning-in, as the operation is technically called, is the great fault committed by those who do not study their plants. We do not believe in digging flower borders periodically. Let the leaves fall upon in autumn, and take a few barrowloads of good soil and sprinkle over them; this will make everything look clean and presentable, will retain the natural manuring in the shape of decomposed leaves which plants so much like, and will recompense for the loss in bulk which arises during summer through carrying off the rakings from the borders. This simple but beneficial plan has another virtue, inasmuch as borders thus treated may have numberless bulbous plants interspersed, and these will throw up their charming flowers in many

instances whilst their neighbours are at rest, and modestly retire when they again put forth their summer verdure. Under the digging system, however, this is simply impossible.

Cowper thus describes a well-kept flower border—

"Few self-supported flowers endure the wind
Uninjured, but expect the upholding aid
Of the smooth-shaven prop, and, neatly tied,
Are wedded thus like beauty to old age,
For interest sake, the living to the dead."

Jerrold's idea of a garden is in itself a beautiful idea, which we cannot do better than transcribe. He says—"A garden is a beautiful book writ by the finger of God. Every flower and every leaf is a letter. You have only to learn them and join them and then go on reading, and you will find yourself carried away from the earth by the story you are going through. You do not know what beautiful thoughts grow out of the ground and seem to talk to a man. And, then, there are some flowers that seem to me like overdutiful children; tend them ever so little and they come up and flourish, and show, as I may say, their bright and happy faces to you." This latter remark of Jerrold's is peculiarly true of alpine and herbaceous plants, for they certainly do yield a maximum of pleasure for a minimum of care.—W. H.

(To be continued.)

SUMMER-SOWN ONIONS.

ONIONS sown in July ought certainly to be termed summer-sown, and yet by some curious inadvertence we have drifted into the habit of calling them autumn-sown. Let us be accurate in everything relating to this crop, for it is one of great importance, to which we must turn for a supply—not momentarily, but for a period of some months' duration when the winter store of spring-sown Onions is exhausted, say by the end of March. "Many a time and oft" have I known beginners at a loss then; nay, I must plead guilty to having been in a similar predicament myself more than once. How was it? Through ignorance? Undoubtedly it was so in part, but not wholly so, for had I not taken especial care to sow plentifully all the best sorts of Tripoli at the right time? and yet, when I had to begin using them, they were so small that a dozen were barely equal to a full-grown Onion. A little attention to securing a sort which developed bulbs of a useful size sufficiently early set matters right, and no time was lost in acquainting readers of the *Journal* of it.

Appeals for information about this matter that have reached me recently, and others made last year, prove, however, the existence of a necessity for again writing about it. The best Onion of all for our purpose is *The Queen*, and yet, strange to say, very little is known about its real value. Turn to some of our leading seedsmen's catalogues, and you will find such descriptions as this:—"Queen, a very pretty little white Onion, of quick growth." "The Queen, a miniature silver-skinned variety, of rapid growth." "New Queen, the smallest and quickest grower; best for salads." Now, to my mind the impression conveyed by such descriptions is certainly not of a nature to induce us to regard this as a really useful vegetable of such importance that upon it alone can we depend for a supply of good Onions in spring and early summer. Yet that is undoubtedly what it is, for it swells into bulbs so early that with plenty of it sown in July with its large congeners, the *Flat* and *Globe Tripoli*, we can depend under good culture upon having it ready to our hand good in March, better in May, and best at midsummer. Nor can objection be taken to it upon the score of size. To be accurate, I have just been to a large bed of it, and find that while most of the growing bulbs are about 3 inches in diameter yet there are many fully 4 inches across, which, I think, it must be granted is by no means a despicable size.

July 15th is my favourite date for sowing *The Queen*, and with it on the same date for a succession the *Globe*, *Tripoli*, and *Giant Rocca*. Sow thickly to facilitate watering, and prick out, as soon as the seedlings are large enough, in rows 9 inches apart and 6 inches asunder in the rows. Take care that the soil is rich, and apply water copiously till the plants are fully established and are growing freely.—EDWARD LUCKHURST.

THE FRUIT SEASON IN WILTSHIRE.

As blossom must precede fruit, I will first notice—what, indeed, every eye has seen—that this has been a wonderful season for bloom on hedge and tree, alike in field and garden. From first to last it has been the same, from the *Blackthorn* down to the *Elder*. Now, however, it is of fruit and not flower that I have to speak.

Let me take the most useful first—Apples. The early varieties have a large crop on them, whether they be eating or cooking. *Irish Peach* shows abundantly its ruddy cheek, and so equally *Hawthornden*. The latter are, perhaps, not so abundant, and some consider them actually deficient; but it must be remembered that the earlier are now the larger and catch the eye more readily. I am told also that the cider varieties have a good crop on them. Pears far more than for several years, but can hardly be considered abundant. Plums, the good bearers such as *Victoria* have to be thinned, while the less heavy croppers are only half covered. Of all bush fruit there is plenty. Raspberries seem all we can wish. Gooseberries quite an average crop. Cherries seem to fall off very rapidly and in great numbers. Damsons and Bullaces fair only. Strawberries are very flourishing, but the damp has caused the slugs to make havoc. Filberts and nuts not numerous; out-of-door Grapes poor, while Medlars are abundant.

Balancing one variety of fruit against another, I should say that there is every promise of a general good crop. In my own garden I have not had such an one since the year 1874. But for the severe frosts of June 7th and 8th this year would have been quite equal to that of seven years ago.

The above remarks refer chiefly to fruit on trees in the open ground. One word upon that on walls: *Apricots* are nil, *Peaches* and *Nectarines* a fair average crop, so, also, the higher classes of *Plums* usually indulged with a wall. *Walnuts* will this winter be enjoyed, but not in great numbers, still it is something to have any after the sad experience of two seasons. The gardener, and particularly the fruit gardener, has cause to raise a note of thankfulness. The terrible disappointments of 1879 and 1880 are not for him this year; labour has not proved in vain, and fond expectations have not again been disappointed.—WILTSHIRE RECTOR.

FANCY PANSIES.

As this is the season of the year when many are procuring Pansies, it may be useful to some of your readers to have a few practical notes. It is only of late years that my favourites the *Fancies* have come to the front, the old florists admiring only the self and belted varieties. The great beauty of the *Fancy* varieties, however, has now won them a position, and we now have them in great variety. Several good florists whom I know grow them almost exclusively, finding it pays well. Why have we not classes for pots of *Fancy Pansies* at our shows? At the *Manchester Whit-week Show* Pansies are shown in pots, and the result is an increased interest in Pansy culture in the locality. The florists in the neighbourhood grow Pansies very successfully, and I now give a few details of their mode of culture.

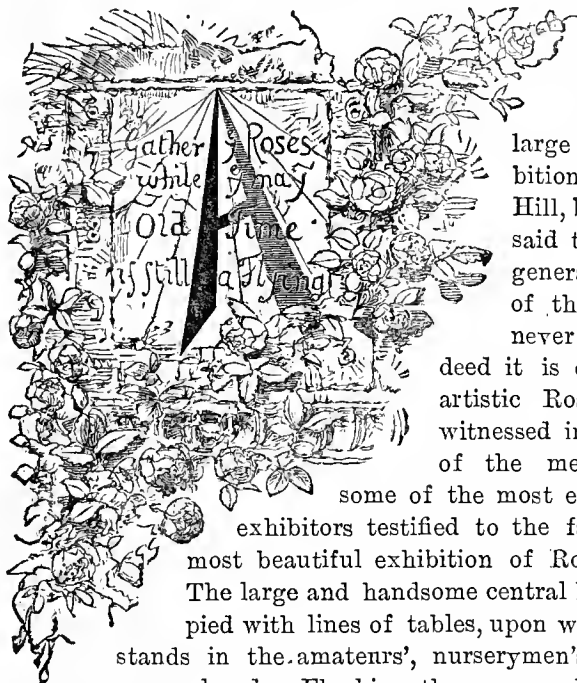
Plants procured now should be planted at once. If there are several growths spread them out as far as possible, burying any long straggling shoots nearly to the point. As the blooms are always near the point of the shoot nothing will be lost in display, and the half-buried shoot will send up small offsets which will be useful as cuttings. The most suitable soil is that which is rather light and sandy, liberally manured, and such as will not be likely to become dry too soon. Such is our soil, and in it Pansies grow as luxuriantly as *Watercresses*. If the soil is unsuited for Pansies—for example, a heavy clay soil—a mixture of well-decayed manure, bog, and sand should be placed round each root; this will help the plant and make it independent of the native soil. The most suitable position is a border which has sunshine only in the morning and good light during the rest of the day; but I have a bed exposed all day to the full power of the sun, and the plants are in good condition and full of bloom. The Pansy succeeds well planted in the mixed border, but a bed containing nothing but Pansies is always interesting. When such a bed is to be made the gardener has an advantage, because he can select a suitable position, and can make the soil suitable by adding manure, sand, and bog. For a bed of Pansies it is wise to have twenty or thirty varieties carefully arranged as to colour. Before planting carefully examine the plants for traces of the fly, which has made sad havoc with the stocks of some nurserymen this year. If there is the least trace of this insect pest, or as a great florist said to me the other day, "whether there are or not," the plants should be dipped in a solution of soft soap and water. In dry weather the bed should be well watered twice a week, as Pansies are impatient under drought. The instructions given above will be sufficient for the present, as the culture is very simple at this period of the year. The most important point is propagating at the right time and in the right manner. At the proper season I hope to send a few practical notes.

As Pansies can readily be procured now it will be wise in the persons anxious to commence growing them to procure one plant of each variety, and a foundation for a good stock for next season.

will then be laid. A stock of good varieties being secured, the only object at present should be to induce free growth. It must also be borne in mind that in order to have a good display of bloom fresh plants should be raised every year. I venture to say that few hardy plants so well repay the trouble taken in their culture as these Pansies; they are easily cultivated, need no artificial heat, and have a range of unusual and beautiful colours. I now give a list of varieties which I have grown, and which I can recommend as being free bloomers and really good for general purposes. All the following are Fancy varieties:—Countess of Strathmore, George Vair, Thomas Grainger, Comet, Leith Walk Hero, Vesta, David Smith, Mrs. B. Brooke, Mrs. Felton, Buttercup, George Wood, Miss Darling.—VINDEK.

ALEXANDRA PALACE ROSE SHOW.

JULY 9TH.



ANNUALLY for some years past there has been a large and successful exhibition of Roses at Muswell Hill, but it may be safely said that as regards the general effect the display of the present year has never been equalled. Indeed it is doubtful if a more artistic Rose show has been witnessed in the neighbourhood of the metropolis; certainly some of the most experienced rosarian exhibitors testified to the fact that it was the most beautiful exhibition of Roses they had seen. The large and handsome central hall was fully occupied with lines of tables, upon which the competing stands in the amateurs', nurserymen's, and open classes were placed. Flanking these on each side, forming the boundary of the Show, and extending the length of the hall, were high sloping stages that bore the contributions to what might be not inappropriately termed the gigantic competition of a thousand blooms. These flowers were chiefly arranged in concentric semicircular lines, the colours being tastefully disposed and the effect very bright and pleasing. There was only one defect in this portion of the Exhibition, and that was due to the boarding being covered with partially dried grass, which imparted a rather dull and unfinished appearance to the stages, as it formed a very unfitting background for the blooms. Had fresh moss been employed or the grass covered with green baize similar to that surrounding the tables a great improvement would have been effected. As an additional artistic attraction an ornamental iron arch was placed at each end of the central path, and from these were suspended numerous baskets of Roses, that only required a few sprays of greenery to have rendered them completely charming. Large Tree Ferns, glass trumpet stands, and miscellaneous plants were freely employed in suitable positions to increase the beauty of the display and furnish an agreeable tone to the brilliancy of colour afforded by the Roses. The glass stands were particularly noteworthy for the simple yet effective manner in which they were decorated. Long sprays of Mock Orange accompanied by small branches of the Purple Beech, Fern fronds, and other foliage gracefully arranged were the chief materials employed. This very successful attempt at an innovation in the mode of holding Rose shows deserves to be followed up; and for a place of public amusement it is unquestionably well suited, as it renders the exhibition of greater interest to those numerous visitors who are not rosarians and yet can admire a pretty floral display.

All the arrangements were well conducted, and the lessees, Messrs. Jones & Barber, and their horticultural superintendent, Mr. J. Forsyth Johnson, deserve to be complimented upon the admirable results achieved.

AMATEURS' CLASSES.—Half a dozen classes were provided for amateurs, and in nearly all the competition was keen, and the blooms of good quality. The prizes ranged in value from £5 to the same number of shillings, the number of blooms stipulated for being from forty-eight to a dozen. The principal class was for forty-eight single trusses, and in that five competitors appeared. T. Jowitt, Esq., Old Weir, Hereford, was accorded chief honours for a collection of fresh, bright, and beautiful blooms, representing the following varieties among others:—Star of Waltham, fine; Marquise de Gibot, Marguerite Brassac, Capitaine Christy, good; Duke of Wellington bright;

Madame Sophie Fropot, Madame Marie Finger, Madame Victor Verdier, Marquise de Castellane, fine; Fisher Holmes, Madame Charles Wood, Annie Laxton, excellent; Xavier Olibo, Victor Verdier, large and full; Marguerite de St. Amand, neat, bright; Baronne de Rothschild, Duchess of Bedford, Edouard Morren, Duchesse de Morny, Charles Lefebvre, Mons. E. Y. Teas, Mrs. Baker, Marie Cointet, Général Jacqueminot, Souvenir d'Elise Vardon, Exposition de Brie, Princess Beatrice, Prince Arthur, neat, fresh; Duchesse de Vallombrosa, Horace Vernet, Elie Morel, Louis Van Houtte, Sénateur Vaisse, Sir Garnet Wolseley, Comtesse de Senye, and Dr. Andry. This was a very satisfactory collection, and was greatly admired. R. N. G. Baker, Esq., Heavitree, Devon, followed closely with very neat blooms, but scarcely so fine as on the preceding Saturday at Sydenham. Some of the finest were Sénateur Vaisse, John Stuart Mill, Madame Sophie Fropot, Sultan of Zanzibar, Reynolds Hole, Marie Verdier, Alfred Colomb, and Marie Rady. The remaining prizes were secured by G. P. Hawtrey, Esq., Slough; Mr. John Hollingworth, Maidstone; and Mr. Joseph Davis, Wilton, Salisbury.

In the following class for thirty-six blooms, single trusses, Mr. T. Jowitt was again foremost among five exhibitors with handsome blooms of similar varieties to those already enumerated; but the following were unusually fine—Marie Baumann, Mons. E. Y. Teas, Marquise de Gibot, Baronne de Rothschild, Sénateur Vaisse, Marquise de Castellane, and Charles Lefebvre. Mr. R. N. G. Baker again took the second place, showing Alfred Colomb, Marie Rady, Devienne Lamy, and Le Havre in excellent form, his other blooms being of fair quality. Mr. C. Davies, Aynhoe, Banbury, and Mr. J. Hollingworth were third and fourth respectively. For twenty-four triplets the Old Weir Roses were again placed in the principal position, and as in the previous classes they well deserved the honour. Louis Van Houtte, Duchesse de Morny, Princess Beatrice, and Peach Blossom were the finest examples in the stand. Still again were the Heavitree Roses in the second place, and perhaps even closer than in the other classes. Messrs. C. Davies and J. Davis secured the third and fourth positions with neat and bright blooms.

In the class for twenty-four single trusses Mr. Wm. Harrington, Corbetstye, Romford, Essex, carried off the first prize with flowers of good substance and very bright. Some of the most notable were Sénateur Vaisse, Beauty of Waltham, Prince Arthur, Exposition de Brie, Lord Macaulay, and Dr. Andry. The Rev. J. A. Williams, Yardley Wood Vicarage, Birmingham, was a very close and good second, staging fine blooms of Prince Camille de Rohan, Marie Baumann, Annie Laxton, Comtesse de Serenye, and Marie Van Houtte. J. H. Pemberton, Esq., Havering-atte-Bower, was third. There were six entries of twelve single trusses, most of satisfactory quality. Mr. Harrington; Ernest Wilkins, Esq., Lyndhurst, Sutton, Surrey; Edward Mawley, Esq., Addiscombe, Croydon; and Mr. J. H. Pemberton were the prizetakers in the order named. Teas and Noisettes were fairly represented in the class for twelve, seven collections being contributed; and though the majority of the blooms were rather small, still in the leading stand from Mr. C. Davies flowers of good substance were included. Of these the best were Mons. Furtado, Bouquet d'Or, Souvenir de Paul Neyron, Caroline Knster, Madame Lambard, and Madame Hippolyte Jamain. Mr. Hollingworth had some fine examples of Souvenir d'un Ami in his second-prize stand; Mr. Harrington showed Niphotos, Madame Sertot, and President well; Mr. Mawley having Rubens and Madame Guillot in good form.

NURSERYMEN'S CLASSES.—In the five classes appropriated to nurserymen some handsome collections were staged, and the blooms generally were more neat and even than at the Sydenham Show. Mr. B. R. Cant, Colchester, was to the fore with seventy-two single trusses, which well merited the position accorded them. It is unnecessary to enumerate all the varieties, as the stand which gained a similar position at the National Society's Exhibition was from the same firm, and the names were then given in full. However, the following few deserve notice as being especially fine:—Xavier Olibo, Alfred Colomb, Ferdinand de Lesseps, fine; Boieldieu, neat; Duchesse de Morny, full; Abel Carrière, very rich; Dupuy Jamain, Baron de Bonstettin, A. K. Williams, very fine; Duke of Teck, Victor Verdier, Baronne de Rothschild, Horace Vernet, Madame Clemence Joigneaux, Pierre Notting, Abel Grand, Annie Wood, Comtesse de Serenye, Innocente Pirola, Magna Charta, Marguerite de St. Amand, and Duke of Wellington. Cranston's Nursery and Seed Company, Hereford, followed with blooms of fine substance, bright, fresh, and of good varieties—indeed, they were very close to the preceding in merit. Sénateur Vaisse, Marquise de Castellane, Horace Vernet, Charles Lefebvre, Madame Charles Crapelet, Le Havre, Alfred Colomb, A. K. Williams, and Dupuy Jamain were admirable. Messrs. Paul & Son, Cheshunt, were third with rather loose and small blooms.

For forty-eight triplets Mr. B. R. Cant was first among five exhibitors. His best blooms were Countess of Rosebery, François Michelin, Dr. Sewell, Comtesse de Serenye, Capitaine Christy, A. K. Williams, Ferdinand de Lesseps, Xavier Olibo, Alfred Colomb, Duke of Teck, and Reine du Midi. Mr. C. Turner, Slough, secured the second award for a neat and pleasing collection, which included Louis Van Houtte, Duchesse de Morny, A. K. Williams, Mrs. Turner, Exposition de Brie, and Prince Arthur in good form. Messrs. Cranston and Paul & Son followed. Mr. C. Turner had the best twenty-four Hybrid Perpetuals; the varieties being Star of Waltham, John Hopper, Princess Beatrice, Louis Van Houtte, Dr. Sewell, Madame Lacharme, Duchesse de

Morny, Charles Darwin, Avocat Duvivier, Madame Thérèse Levet, Elie Morel, Countess of Roseberry, Triomphe de France, La Rosière, Sir Garnet Wolseley, Baronne de Rothschild, Marie Baumann, A. K. Williams, Duke of Connaught, Comtesse de Serenye, Marguerite de St. Amand, Comtesse Tretiakoff, and Beauty of Waltham, all very bright and of excellent quality. Mr. G. Prince, Oxford; Mr. John House, Eastgate, Peterborough; and Mr. B. R. Cant followed in the order named. Mr. C. Turner was also first with twenty-four single trusses, a class in which the competition was very keen, nine stands being contributed. Messrs. Kinmont & Kidd, Canterbury, took the second position for creditable blooms; Messrs. John House and E. P. Francis & Co., Hertford, being third and fourth with neat stands.

Four competitors appeared in the class for twelve Tea or Noisette blooms, and some remarkably handsome examples were included in the leading stands. Messrs. Paul & Son secured the chief honours with fine flowers of Caroline Kuster, Souvenir d'un Ami, Devoniensis, Catherine Mermet, Madame Willermoz, Jean Ducher, Souvenir d'Elise Vardon, Madame Lambard, Rubens, Niphetos, Bouquet d'Or, and Alba Rosea. Mr. G. Prince was second, also with good blooms, Amazon, Marie Van Houtte, Madame Guillot, Devoniensis, and Mons. Furtado being the best. Mr. Cant had Innocente Pirola, Bouquet d'Or, Madame Welch, Jean Ducher, and Madame Bravy in good form in his third-prize stand.

OPEN CLASSES.—The chief class in this section was that for the best thousand Roses, for which gold, silver, and bronze medals were offered, the blooms remaining the property of the lessees after the Exhibition. There were four entries, the disposition of which have already been referred to. Mr. T. Jowitt was accorded the principal prize for a handsome and diversified collection, the Roses being arranged in concentric lines in three connected semicircles. The colours were bright and tastefully arranged. Messrs. Cranston were second with two beds of blooms, one on each side of the hall in the form of quadrants, very pretty and effective. Messrs. Paul & Son had three large oval beds of fresh clean Roses, but not quite so bright as in the others. Next in interest to the above were classes for white, dark, pink, and yellow Roses, twenty trusses of each. In the first-named Messrs. Paul & Son were first with Souvenir de la Malmaison and Mdle. Bonnaire, both fine; Mr. Cant followed with Mdle. Bonnaire and Devoniensis, and Messrs. Cranston with Niphetos. The best dark Roses were A. K. Williams, Marie Baumann, and Reynolds Hole from Mr. Cant, all being excellent. Messrs. Paul also had the first-named variety in good form, Messrs. Cranston being third with Madame Charles Wood, and Mr. G. Prince held a similar position with Horace Vernet. Messrs. Cranston were first in the pink variety class with Baronne de Rothschild, fresh, full, and handsome; and third with Marquise de Castellane. Mr. Jowitt followed with Duchesse de Morny, uncommonly fine both in form and colour. Mr. Cant was first with Marie Van Houtte and La Boule d'Or in the yellow variety class, having handsome flowers of each. Mr. G. Prince was second with Maréchal Niel and Reine du Portugal. Messrs. Paul and Cranston secured the prizes for twenty trusses of Rose buds, each firm contributing pretty collections.

Another distinct section of the open classes was for bouquets of Roses—white, dark, pink, yellow, and mixed. Several very pleasing bouquets were contributed in each class, and these being placed upon a central circular table proved a great attraction. The principal prizetakers were Messrs. Paul & Son, Cranston, Cooling & Sons, J. House, R. T. Veitch of Exeter, and Wilkins.

NEW ROSES.—A class was provided for six trusses of any new Rose not in commerce, and three exhibitors appeared, who were accorded the prizes in the following order—Mr. B. R. Cant first for *General Sir Evelyn Wood*, a Hybrid Perpetual Rose of good promise, very close and compact, of moderate size, and of a clear light purplish rose tint; Mr. C. Turner second for *Alice Turner*, also a Hybrid Perpetual of a soft, bright, rosy scarlet tint, neat in form and very effective—a most pleasing shade of colour; Messrs. Cranston third for *Mary Pochin*, a bright crimson scarlet Rose of moderate substance; petals broad, brighter in the upper surface.

Miscellaneous exhibits were not very numerous, but Messrs. H. Cannell & Son, Swanley, had an attractive collection of Pelargonium blooms comprising a large number of handsome varieties, and Mr. G. Prince exhibited several boxes of Tea and Noisette Roses, with a pretty collection of Rose buds. Both firms were highly commended.

CARDUUS ERIOPHORUS.

I HAVE been much struck with the beauty and elegance of the cotton-headed Thistle, *Carduus eriophorus*. I found some plants in the neighbourhood of Boulogne and brought home the seed, from which I have raised one plant. It is now rather more than 5 feet high and about the same in diameter at the base, and forms a pyramidal plant of no common elegance, though not yet in bloom. The heads of the Thistles are very curious covered with a cottony down; the flowers are a deep purple, and larger than any other Thistle that I am acquainted with. The leaves are half clasping the stem but not decurrent, cottony beneath, deeply pinnatifid with double lobes, one of which points upward, the other downward. I do not know if it is often used as a decorative plant, but I can highly recommend it as such. I have grown

Onopordum acanthium (Cotton Thistle) for decorative purposes; it makes a noble plant some 7 feet high, and a friend of mine last year had a hedge of it that formed a background of unique appearance, but it is inferior to the former plant for decorative purposes.—GEORGE DOWKER.

WIMBLEDON FLOWER SHOW.

WIMBLEDON is a notable place for contests, and the fine common is the rendezvous of thousands who congregate there from day to day at this period of the year. It is fitting that among other organisations the district should have a horticultural society, for it is studded with good gardens managed by intelligent men and excellent cultivators. The ninth Show was held on Thursday last, by the kind permission of Mr. Walters, in the well-timbered grounds of Woodhays, the visitors being further favoured with access to the flower garden which Mr. Bridger had rendered so attractive by its brightness and extreme neatness. The Exhibition was in most respects fully equal to those of the past, and in some respects decidedly superior. A new feature this year consisted in the groups of plants arranged for effect, and the competition was so good that this department of the Show and the Roses and cut flower classes, including vases, bouquets, &c., shared about equally the attention of the visitors. Of fruit the display was very creditable, and vegetables were admirably represented, the Judges having had great difficulty in making the awards.

Only the general character of the Show can be noticed, the effect groups claiming prior attention. These were arranged along the sides of the marquee, most of them being of semicircular form, which is perhaps the best mode of disposing of collections ranging from 50 to 100 superficial feet in extent, larger groups having a greater lateral extension according to the width of the tent. By this arrangement only one "face" has to be produced, and this with small groups can be rendered more picturesque than when the arrangement is of square or circular outline. In the open class for groups of 100 square feet Mr. Stevens, St. John's Wood Nursery, Putney, was worthily placed first with a free and diversified arrangement, the plants being in excellent condition; the margin of Gloxinias and Selaginellas was very attractive. Messrs. B. Peed & Son, Streatham, were second with a very bright arrangement, the Heaths showing to great advantage. Although this group was not crowded it was too smooth to gain a higher award. Mr. Law, gardener to R. S. Dean, Esq., The Priory, Wimbledon, was the remaining prizewinner, and well deserved his position. In the smaller 50-foot groups Mr. Bridger; Mr. Stratton, gardener to Miss Forbes, Chester House, Wimbledon; and Mr. Bentley, gardener to Sir Thomas Gabriel, Bart., Roehampton, were awarded the prizes in the order named for arrangements of considerable merit, but in some of them the plants were rather too closely packed, and the groups too formal. Prizes were also offered for still smaller groups of 40 square feet open to amateurs not employing a regular gardener, and highly creditable displays were arranged by Messrs. Dove, Collins, and Maton, the prizetakers in this class. Mr. Thompson, nurseryman, Wimbledon, arranged a beautiful group not for competition; the margin of *Caladium argyrites* was particularly attractive. Messrs. J. Laing & Co., Forest Hill, had also a fine group composed of valuable plants tastefully arranged, also a box of splendid Begonia flowers. For these collections certificates of merit were deservedly awarded.

In the specimen plant classes the competition was good, and many excellent examples of culture were staged. Stove and greenhouse plants and Ferns were generally very good, many plants in the last-named class being superior. Zonal Pelargoniums were not on the whole quite so good as we have seen them. *Caladiums*, *Gloxinias*, and especially Tuberous Begonias were very fine, and Coleuses and Achimenes good. The principal prizetakers in the above classes were Messrs. Bentley, Bridger, Stratton, Law, Wormald, Starr, and Forbes. Mr. Legg, Worple Nursery, exhibited a fine group of the newer varieties of Zonal Pelargoniums in 5-inch pots. The plants were splendidly grown and flowered, and merited, as they received, high commendation. Some excellent stands of Roses were staged, and the competition in the principal classes was very close. In the open class for twenty-four blooms Messrs. Gibson, Moorman, and Berry were the successful exhibitors, and in the special prize for twelve blooms Dr. Brooklees was first, Mr. Moorman second, and Mr. Coleby third. Messrs. Veitch & Sons, Chelsea, showed splendid stands, not for competition, and for which a certificate of merit was granted.

Fruit was generally of good average quality. For a collection of six distinct dishes Mr. Davis secured the premier position with black and white Grapes, Figs, Melons, Peaches, and Nectarines. For black Grapes Mr. Law was in the first position; for white Grapes Mr. Bentley; and Messrs. Alderman, Davis, and Cole were the most successful exhibitors of Peaches, Nectarines, and Strawberries. Mr. Bennett staged a collection of six bunches of Grapes and six Melons not for competition, and received a certificate of merit.

Vegetables were very good indeed, and it is seldom that there is such close competition as existed in the class for twelve dishes staged by Messrs. Fanning, Gibson, and Law, who were awarded the prizes in the order named after a long and critical examination by the Judges.

A great number of special prizes were provided by supporters of the Society, including Lady Peek, who provided prizes for hardy flowers; and Sir Trevor Lawrence, Bart., for table plants. The com-

petition in these classes was good throughout. Cottagers staged garden produce of great excellence, and the contributions of wild flowers and grasses by school children were very meritorious. The Show was excellently managed by Mr. Rolt, the able Secretary, and the members of the Committee, and was altogether both enjoyable and successful.

CROTON SINITZINIANUS.

AMONG the new Crotons with narrow leaves this appears likely to obtain a high position, for when in good condition it is scarcely surpassed in elegance of habit. To render it most effective, however, the yellow and dark green tints in the leaves require to be well and clearly developed, or there is a slight approach to

dulness in the appearance of the plant. The introducers, Messrs. Veitch & Son, Chelsea, have favoured us with the accompanying woodcut, which faithfully represents the characters of the plant as it has been shown at various metropolitan exhibitions, when certificates have been awarded for it. The firm also gives the following particulars concerning it:—"An elegant variety, kindly sent to us by Sir William Macarthur, of Camden Park, near Sydney, New South Wales. The plant is of very light and pleasing aspect. The leaves are narrowly lanceolate, gracefully arching and variable, some with interruptions, others with the blade spirally twisted two or three times round the midrib at the middle; others again crisped and undulated. In colour they are deep olive green variegated with straw yellow, which is constant.

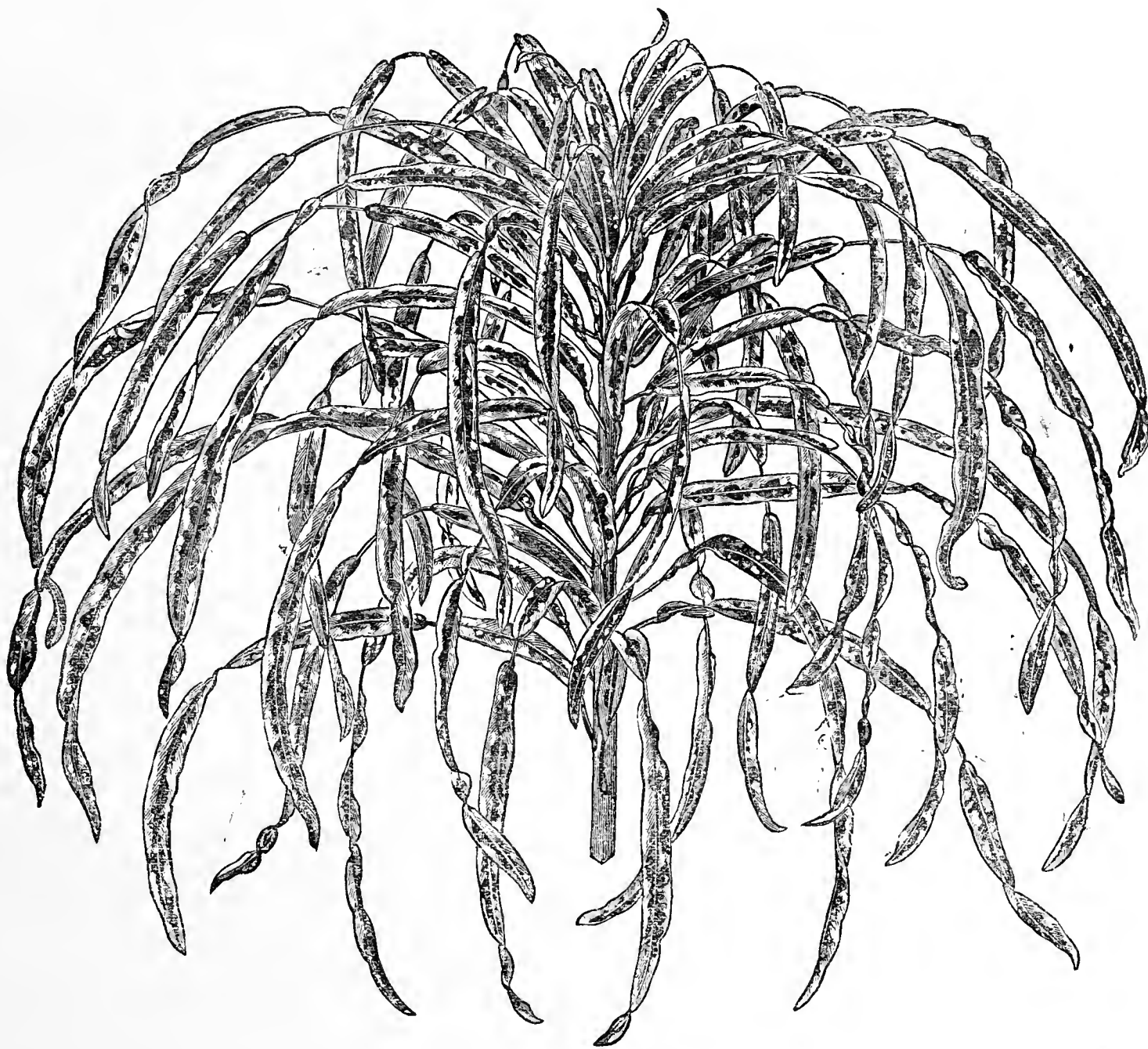


Fig. 5.—CROTON SINITZINIANUS.

It is one of the best of Crotons for table decoration. We have much pleasure in dedicating this elegant plant to Monsieur Peter Sinitzin, an accomplished Russian amateur."

CARDIFF ROSE SHOW.

ONE of the latest adhesions to the cause of the Rose has been the flourishing town of Cardiff, and thus her majesty has been able to assert her sovereignty in the principality. A Society has been started under the most favourable auspices; and although most of those who exhibited had never seen a Rose show before and knew nothing of the quality of flowers required to win success, yet as a first attempt it may be regarded as a success, and an indication has been given of future progress. The Exhibition was held in the Drill Hall, a grand building for the purpose, with the light from above and abundance of room for moving about. The flowers were arranged on two long tables running the entire length of the room; in fact rather too much space had been allowed, but this and other matters will no doubt be

rectified at the next Exhibition of the Society. The principal exhibitors were amongst nurserymen the Cranston Company from Hereford; and amongst amateurs Mr. Pettigrew, gardener to the Marquis of Bute, Cardiff Castle, and Mr. Crossley, gardener to Lord Windsor at St. Fagan's. There were many other exhibitors, but the stands exhibited by them far surpassed any others.

The Cranston Company, as might have been expected, being near home exhibited some very fine flowers, notwithstanding that their own Show at Hereford was held on the same day, their immense stock enabling them to compete at both successfully. In the stand for thirty-six blooms, in which they gained the first prize, were excellent flowers of Madame Charles Wood, Fisher Holmes, Eugénie Verdier, Perle des Jardins, Comtesse d'Oxford, Exposition de Brie, Madame Vidot, a Rose rarely seen on the exhibition table; Horace Vernet, Niphetos, Hippolyte Jamain, Marie Guillot, a very beautiful Tea; Annie Laxton, Auguste Neumann, Lord Macaulay, Edouard Morren, Mons. Boncenne, and Souvenir d'Elise. Mr. J. Tresider of the Ely Road Nursery was second. In the class of twenty-four trebles the

Cranston Company were again first with fine blooms, among which were Baronne de Rothschild, Duchesse de Vallombrosa, Marie Baumann, Mons. Noman, Le Havre, Marie Cointet, Boieldieu, very fine. They were also first in the class for twenty-four single. Capt. Christy, A. K. Williams, Madame Lacharme, very pure; Mrs. Baker, Comtesse de Serenye, extra; Mons. E. Y. Teas, Jean Liabaud, Marie Cointet, Général Jacqueminot, La Rosière, and Madame Charles Wood were exceptionally good. But their most taking stand was that for twenty-four Teas and Noisettes, although some have contended that it was impossible to show twenty-four good Teas. It contained Maréchal Niel, Catherine Mermet, Madame Camille, Madame Caroline Kuster, Louise de Savoie, Madame Celine Noirey, Innocente Pirola, very beautiful; Perle de Lyon, Comtesse de Nadaillac, a lovely bloom; Devoniensis, Marshal Bugeaud, Souvenir de Paul Neyron, Madame Hippolyte Jamain, Rubens, Madame Furtado, Madame Sertot, Madame Emilie Dupuy, Perle des Jardins, Bouquet d'Or, Marie Van Houtte. This box certainly attracted, and deservedly, more attention than any other in the Exhibition. In the stand for twenty-four blooms of one variety they gained the first prize with clean blooms of Mons. Noman, and in that for twelve Teas with a beautiful box of Perle des Jardins.

In the amateur class Mr. Crossley was first with Ville de St. Denis, Abel Grand, Alfred Colomb, Mdle. Annie Wood, Marquise de Castellane, Gédéon Jacqueminot, Capt. Christy, Charles Lefebvre, Mdle. Marie Cointet, La Fontaine, Pierre Notting, Marie Baumann, Maréchal Niel, Centifolia rosea, Comtesse de Serenye, very fine; Star of Waltham, Sultan of Zanzibar, V. Verdier, Madame Lacharme, François Michelin, Bessie Johnson, and Boieldieu. Mr. Pettigrew was a good second, and had among others fine blooms of Madame Lacharme, La France, and Baronne de Rothschild. In the class for twelve Mr. Moore of Coedyleon, Cardiff, was first with Marie Baumann, Sir Garnet Wolseley, Madame Eugénie Verdier, Louisa Maynard, Abel Grand, Hippolyte Jamain, A. K. Williams, Marquise de Castellane; and in the class for twelve Teas Mr. Crossley was again first with Perle des Jardins, Letty Coles, Belle Lyonnaise, Catherine Mermet, President, Maréchal Niel, Souvenir d'un Ami, Lamarque, Devoniensis, Niphotos, and Celine Forcstier. He was also first in the class for twelve of one sort with Marie Finger, and first in the class for six Teas or Noisettes with Gloire de Dijon.

The Marquis of Bute's liberal prize of £5 for the best twelve blooms of the old York-and-Lancaster Rose, or rather the Rose generally known as such, was won by Mr. Pettigrew; and the prize for the best twelve of Baronne de Rothschild was awarded to Mr. Crossley for a beautiful box of blooms, Mr. Pettigrew being a good second with a very fine box. It should be noticed that the scarcity of good blooms in the other boxes exhibited arose partly from the fact that a tremendous thunderstorm burst over Cardiff on the evening before, accompanied with torrents of rain, and that, as many of the exhibitors waited until the morning to cut their blooms, the greater portion of them were destroyed by it. The arrangements were carefully carried out by Mr. Pettigrew under the able superintendence of Major Knox. There was also an excellent show of Strawberries, some fine dishes of President, Sir Charles Napier, and Amateur being staged, and altogether the town of Cardiff may be congratulated on the step that it has made. The National Rose Society's medals were won by Mr. Cranston and Mr. Crossley.—D., Deal.

SUTTONS' MARVEL CABBAGE LETTUCE.

I HAVE grown many Cabbage Lettuces and seen many more, but I have no experience of any to surpass the one named above. It is superb in every way. At first the young plants are nearly black in colour and of no great promise. As the outer leaves do not extend far, consequently it can be grown close together; but from this small state it quickly assumes large proportions, and solid heads are soon formed of great crispness. I have several new vegetables on trial here this season, but none has pleased me so much as this Lettuce. Our stock of seed being very limited it was sown very thinly on a 4-foot bed. A number of the seedlings were transplanted, enough being left for a crop, and these are now very fine.—J. MUIR.

WHAT PLANTS USE.

(Continued from page 535.)

VERY few places have an adequate supply of proper water, and without this many failures, or at best very partial success, attend even well-directed labour and judiciously laid-out money otherwise. The first thing to consider in erecting glass houses which are to be filled with occupants requiring large quantities of water is where the water is to come from. Often it is the last, and its procuring afterwards costs more than can well be afforded. Too often the labour that ought to be spent elsewhere is spent in carrying it from a distance in cans; disappointment and failures follow, where otherwise success and satisfaction might result.

Closely allied with the subject of watering is the one of drainage. We cannot in this place enter into the subject deeply, and as it has often been treated on in the pages of the Journal it is

only necessary to draw attention here to the cleansing effects of draining. Soils from which water cannot readily escape generally contain matter noxious to vegetation. It is also known that when such lands are effectively drained the noxious matters disappear in time—are, in fact, washed by the descending rain out of the soil, and carried away by the drains. Soils into which water soaks but never passes through are always full of matter hurtful to vegetation. Even necessary food when present in superabundant quantity is hurtful, and often destructive. Soils into which much nourishment is washed by water, and never any washed out, speedily become unfit for plants. Very many old Vine borders are in this condition, especially those inside. More than once has the writer assisted in renewing inside borders of vintages, and been astonished to find not a living root in the old soil. No doubt many readers have noticed the same. As we grew older wonder ceased at that. The wonder now is how any living thing can exist in some of them. Once we tried when very young to improve some fine Fuchsias by soaking the soil in which they grew with pure cow urine. It killed them. Since we have grown them with cow urine only for manure, and that with much success; but then it was given much diluted, and only at intervals. Between times liberal waterings were given of clean water, which effectually prevented any injurious accumulation of the salts contained in the urine.

It is seldom that the waterings which Vine borders receive filter through into the drains; and yet they should, otherwise of what use are the drains? Salts are necessary to plant life, and with ammonia are very helpful when they do not exceed a certain proportion in the soil. We all know that. When they are present in too great quantity they become actually poisonous. In hundreds, thousands of Vine borders, throughout the land salts are present in excessive quantity. When liquid manure is given to inside borders just in sufficient quantities to moisten the whole there is an addition to that border—of what? Water and manure? No, but manure only; for the water soon escapes by evaporation from the surface or by the leaves of the Vines, and a portion, very often a large one, of the manure is left behind in the border. This operation continues until so much accumulates that the roots perish, or travel away to more wholesome if poorer material. We all know that Vine roots travel far, but few dream that they are "driven from home."

The writer once served in a garden when the Vines were past their best and very near their worst. It was not for want of manure nor top-dressings. We ventured to hint to the head gardener that perhaps the borders were too rich. His opinion was they were too poor—exhausted he said. Fuchsias were being potted at the time, and as he laughed at my idea that the borders were too rich, it was proposed that a portion of the Fuchsias should be potted with soil from the borders without any addition save sand. This proposal was acceded to, to teach us how ignorant we were, for our reputation was risked by maintaining that they would fail to root in it, as proved to be the case. We went another step. It was proposed to take a given quantity of soil from the border and to make liquid manure with it, and to try it against an equal amount of cow manure. Each was used on an equal number of the afore-mentioned Fuchsias to test their value, and the liquid manure made from the soil taken from the border actually proved stronger than that from the cow manure. The whole border was a manure heap, and a strong one. Many borders are in the same condition.

How is this state of matters to be remedied or prevented? By withholding manure? By no means. How does Nature prevent an undue accumulation of acids and salts? She washes them out. Why cannot we do the same? Some fear to impoverish their borders if they do so. But there is no real danger of that. It is only when these are present in too great quantity that they are removed at all. Soils hold saline and other matters in spite of water, indeed filter them out of water. There is no fear then of impoverishment ensuing when water is passed through borders in quantities sufficient to cleanse them. Moreover, liquid manure should follow, for one dose will never harm unless too strong, but the very reverse. It is only when too strong or when the borders are already too rich that it does harm, and this over-richness cannot be better dealt with than by washing. Some may be inclined to ask, "Why wash out manure and then add more?" Well, the fact is, few manures possess the different salts which Vines need in the proportion required. No matter, then, how carefully we apply manure, there will be left in the soil the matters which were present in excessive quantity in the manure applied. Again, even under-manured soils through which water never passes accumulate hurtful matters which water is capable of removing. Soils may be poor and also noxious; soils may be rich and yet wholesome. It is not only excessive accumulations

of manurial matter which render soils noxious, but acid and other matters seldom fail to accumulate unless the soil is cleansed by water and air. Aërated soils are seldom noxious, and nothing secures the aëration of soils compared with waterings if the soils are properly drained. As the rain fills the pores of the soil the air it contains is driven out; as the water drains off the air follows, and thus is renewed. The air as well as the rain is generally warmer than the soil, and they therefore warm it. When it does not pass through but stagnates instead, sourness, coldness, and generally unwholesomeness is the result.—SINGLE-HANDED.

HORSHAM ROSE SHOW.

THE fact of the heavy thunderstorm rain of July 5th not having reached this district was rather a disadvantage to the Horsham exhibitors, watering being comparatively at such a time of very little use. Notwithstanding, the Show was a fairly good one. The honours of the day belonged distinctly to Mr. A. Slaughter, who, amongst other first prizes, obtained that for twelve Teas, the box being also the best in the Show, and thus gaining the National Rose Society's silver medal, and also containing a Rose, Madame Lambard, which obtained of itself the Society's bronze medal as being the best Rose in the Show.

Probably very considerable difficulty was experienced in comparing Hybrid Perpetuals with Teas; the best of the former was unmistakably a large Marie Baumann in Mr. Sharp's box of six of the same kind. Mr. Mawley exhibited an A. K. Williams of considerable merit. Mr. Slaughter obtained a second prize for twelve of any kind, showing very fine Baronne de Rothschild, Camille de Rohan, and Comtesse de Serenye, being only surpassed by an almost faultless box shown by Mrs. Henry Padwick, in which were splendid specimens of Etienne Levet, Paul Neyron, Prince Camille de Rohan, and Duchesse de Vallombrosa. In the open class of twenty-four Mr. Piper was first, and Mr. Brown of Reigate a very good second; in the open twelve class Mr. Mawley of Croydon was first; in the eighteen of the Society Mr. Sharp obtained a first; in the open twelve Hybrid Perpetual class Mr. Piper's liberal prizes, for Roses to be selected from his catalogue, were gained by the Rev. A. Cheales and Mr. Graveley of Cowfold. The coolness of the day contributed to the excellent appearance of the Roses, and contrasted agreeably with the oppressive heats of the earlier part of the week.

It is to be regretted that this spirited and liberally conducted Society does not receive either the local or county support to which it is entitled. The attendance during the afternoon was very scanty.—A. C.

DAYS' EARLY SUNRISE PEA.

WILL any readers of the Journal who have grown this Pea be good enough to state their experience with it? There are a great number of people, myself among the number, who cannot afford to try all the novelties the first year of their introduction, but wait with much anxiety for information which that year affords. The second year's sale of a new vegetable, if it is of proved excellence, is always great, and if the price is slightly lower it is a great advantage to many purchasers and no loss to the vendors. I have heard an excellent account of the Pea in question from a friend who has seen it growing; and another friend who has partaken of a dish states that it is a very good Pea, but not better than William I. nor quite so early; yet another informant states it is finer than William I. in appearance, but not quite so good in quality, while there is no difference in the two varieties as to the period of use. This evidence is a little conflicting and not quite satisfactory, and I feel sure a record of the practice of cultivators would be welcome to many.—CLERICUS.

REIGATE ROSE SHOW.

IN the Priory, one of the prettiest places where places of that character abound, by the kindness of Lady Hay Somers the Reigate Show was held this year on Tuesday last, the 5th inst., which we are told, and which indeed we hardly need to be told, was one of the hottest days we have experienced for the last twenty years—as much in the extreme of heat as was that awful Tuesday in January in the extreme of cold. It may be readily imagined, as the Exhibition was held in a tent, that it was very trying for the flowers, and long before the Show was over they must have been quite *passée*; but in the morning, when the Judges went round, they were very fine—indeed, how can it be otherwise when Reigate possesses such keen lovers of the Rose and such successful exhibitors as Mr. Baker, Mr. Haywood, Mr. Wollaston, Mr. Sargent, Mr. Waterlow, and Mr. Pawle, who have mostly won high honours, and that very often, in our metropolitan shows?

In the class for twenty-four Mr. A. J. Waterlow was first with an excellent box, containing King's Acre, Capitaine Christy, Marquise de Castellane, Devoniensis, François Michelin, Marie Baumann, La France, Edouard Morren, Bouquet d'Or, Baron Hausmann, Abel Carrière, Perfection de Lyon, Etienne Levet, Madame Hippolyte Jamain,

Penelope Mayo, Dupuy Jamain, Comtesse de Serenye, Marie Cointet, François Premier, Duchesse de Caylus, Camille Bernardin, Pierre Notting, Marie Rady, and Charles Lefebvre. Mr. Haywood was a good second in the class for twelve. Mr. Haywood had a splendid box, containing Marie Verdier, Mons. Noman, Louise Pernet, Baroness Rothschild, Madame Hippolyte Jamain, Madame Victor Verdier, Mons. E. Y. Teas, Duke of Edinburgh, Marie Rady, Madame Lacharme, and Charles Lefebvre. In the class for trebles Mr. Sargent was first with Horace Vernet, Madame Hippolyte Jamain, Emilie Hausburg, Camille Bernardin, Duchesse de Vallombrosa, Madame Lacharme, Marie Baumann, and Capitaine Christy. In the class for twelve Teas there was a keen contest between the excellent President of the Society (Mr. Geo. Baker) and Mr. Waterlow, decided in favour of the latter ultimately, but with very little to spare—in racing parlance, won by a head only. Mr. Waterlow's contained Gloire de Dijon, Caroline Kuster, Bouquet d'Or, Madame Camille, Catherine Mermet, Madame Willermoz, Souvenir de Paul Neyron, Alba Rosea, Marie Guillot, Jean Ducher, Niphetos, and Jean Pernet. Mr. Baker's box contained Niphetos, Madame Charles, Céline Noirey, Souvenir d'Elise, Alba Rosea, Souvenir d'un Ami, Anna Ollivier, Archimede, Devoniensis, Rubens, and Marie Guillot. In the class for six Teas Mr. E. Mawley was first with Caroline Kuster, Innocente Pirola, Jean Ducher, Marie Van Houtte, Perle des Jardins, and Souvenir d'un Ami. This was an excellent box, and reflected great credit on an exhibitor who has so small a number of plants. The much-coveted prize of the gold medal of the National Rose Society, which was generally admired, was won by Mr. Sargent for the best box of twelve blooms of one kind with a splendid stand of Baronne de Rothschild. The silver medals for the best Hybrid Perpetual was won by Mr. Haywood for a splendid bloom of Charles Lefebvre; and for the best Tea by Mr. Geo. Baker. The prize for the best six of any one kind was taken by Mr. Stone with a good stand of Marie Baumann; and the second by Mr. Cuthill for a nearly equal stand of Général Jacqueminot. I am aware that this is rather an imperfect record of the doings at Reigate, but with the thermometer at 85° in the shade, and the prospect of a journey to Cardiff in the afternoon, I think the readers of the Journal will not be very hard upon the writer.

In one respect there was a great falling-off in the Exhibition—the stands of cut Roses and foliage. When I first visited Reigate there was a tent full of these, and most of them excellent in design and execution; this year, owing to what cause I know not, there were only four, the first prize being awarded to a very beautiful stand of wild Roses and foliage exhibited by the same lady whose stand some three years ago was so exquisite—Miss Thornton, and with whom the Treasurer declares I fell in love on account of it! Her stand this year was somewhat like it, and set up with the same good taste. The second stand was also very pretty. The hand bouquets of Roses were of no special merit; but then it is a most difficult thing to make a bouquet of one flower alone, and especially of the Rose, to look elegant. I must not omit to mention that Messrs. James Veitch and Sons of Chelsea sent down a most interesting group of plants, which occupied one end of the tent, the plants which attracted most attention being the *Nepenthes*, *Sarracénias*, *Droseras*, and *Cephalotus*.

Reigate possesses in its President one of the most genial and hospitable of men, and one who never fails to show honour to all who love his favourite flower; and I am sure all who know, and who consequently value him, will wish that he may be spared for many years to preside over a Society which fosters the Rose.—D., Deal.

THE ST. OSYTH SEED FARMS IN JULY.

WITHIN a few miles of the Essex coast, in the direction of Clacton-on-Sea, is situated the small and quiet village of St. Osyth. This has long been invested with much interest to the antiquarian, as the reputed site of a nunnery said to be the most ancient institution of the kind in the county, and originally founded by a daughter of one of the East Anglian kings. It is near this historic village that the travelling horticulturist will find an estate of surpassing beauty should he be fortunate enough to visit the district during the summer months. The beauty does not consist in verdant lawns, winding walks, majestic trees, or elaborately designed flower beds. The flowers are indeed there, but in lines hundreds of yards long, or in large quadrangular patches each nearly an acre in extent. It is in these masses of colour that we find a beauty, a splendour—nay, even in some cases a gorgeousness, that cannot be rivalled in ordinary gardens.

Few indeed have the opportunity of seeing annuals and other popular flowering plants in such quantities as they are grown in Messrs. J. Carter & Co.'s seed farms, and those who are only accustomed to the slender lines and diminutive plots of those flowers ordinarily seen in gardens could scarcely imagine the magnificent effect produced by the huge masses of scarlet, pink, yellow, and blue. Of course there is a far more practical signification attached to them than their brilliancy or beauty to the visitor, for they represent a portion of the stock in trade of a great firm, and as such we perceive in the high quality of the strains, and the care exercised to preserve them pure, the most substantial testimonials it is possible to obtain. Annuals are chiefly

grown at the St. Osyth farms, vegetables being only represented by a few choice Peas and Lettuces, the bulk of the stock in this department being grown elsewhere. To enumerate the former alone would far exceed the space at our disposal, but a few of the most remarkable, together with the most distinct and striking novelties, may be briefly indicated to convey some idea of the extent and nature of the work done. One of the first attractions was a large square bed of the Blue Woodruff (*Asperula azurea cæspitosa*), of tufted habit, and, viewed in the mass of a soft blue tint, reminding one strongly of the peculiar steely hue characterising the flower heads of some *Echinops*. Near this were masses of the light yellow composite *Helipterum Sandfordi*, and beds of the large pale yellow Wallflower-like *Erysimum arkan-sanum*. *Clarkias* in several portions of the farm were grandly represented, especially noteworthy being a beautiful novelty which originated there entitled *Mrs. Langtry*. This is unquestionably a distinct and handsome variety, the petals having evenly rounded margins, rich crimson in the centre, with a broad and clearly defined marginal band of white; it is very constant and will probably become a popular favourite. Passing large extents of *Leptosiphons*, yellow and purple Sweet Sultans, we next noted several select varieties of *Godetia* in similar profusion. *G. Lady Albemarle* is now an established and well-known form,

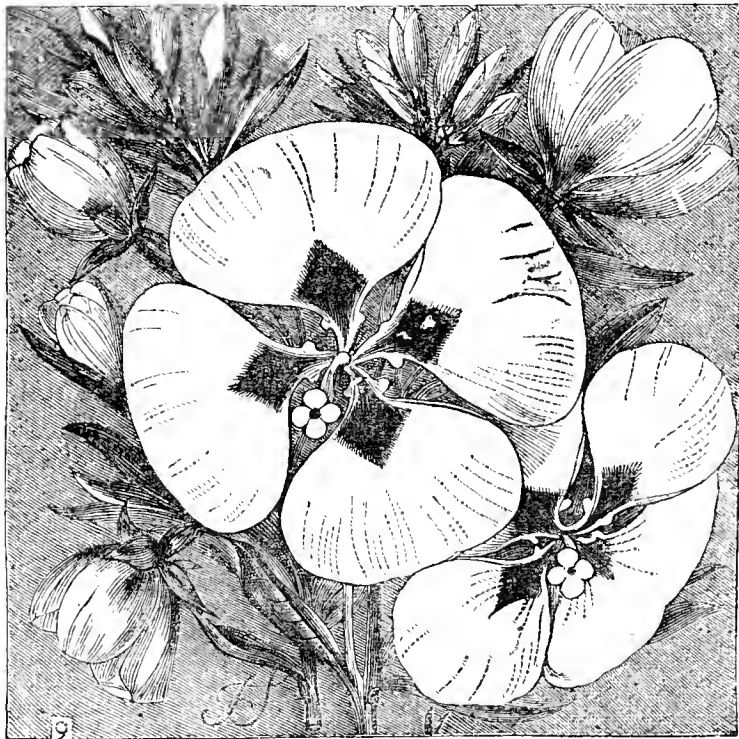


Fig. 6.—*Clarkia Mrs. Langtry*.

and the crimson flowers produce a grand effect; yet the new variety *Princess of Wales* with bright crimson flowers having a lighter centre, and of very compact habit, is even more attractive. *Eschscholtzias* are extremely brilliant, the bright yellow *E. californicus* and *E. crocea*, with its varieties, and the handsome orange and dark scarlet *E. Mandarin* are well represented. A very distinct and pretty form with soft, clear, rosy-tinted flowers selected from the last-named, is also being tried, and is likely to prove an acquisition of considerable value. Efforts are being made to secure a *Mandarin Eschscholtzia* that shall have the inner surface of the flower of a similar tint to the outer portion of the petals, and already there is evidence of some progress having been made. The bright pink *Saponaria calabrica* occupies hundreds of square yards, while the dwarf free-flowering *Silene pendula compacta* was seen in equal quantities; *Antirrhinums* of diverse hues, bright blue *Clintonias*, and soft azurean *Kaulfussias*, all contributing to a vast panoramic plateau of colours. Now an unsurpassed bed of dark crimson *Candytuft* came in view, and the richness of colour was still further heightened by contrast with huge breadths of the sweet white *Alyssum* which load the air with delicate perfume. The *Candytuft* is remarkably fine and merits all that can be said in its praise, for both in compactness of habit and depth of colour it is superb.

Another important feature is the breadths of *Virginian Stock* of several fine varieties, but one, a recent selection on the farm, now well tested and perfectly true, is named *Fairy Queen*—a well-chosen title for what is by far the most handsome form that has yet come beneath our notice. It is dwarf and compact in habit, and the flowers when they first expand are a very bright rose colour with a distinct approach to scarlet, which as they become

older fades to a lighter hue, and when seen in a mass the combination of these tints produces a soft yet bright hue that is most pleasing. A short distance from these *Convolvulus minor mon-strosus* presents a grand sheet of the most brilliant blue flowers relieved by the white centres. So even was the bed that it resembled a handsome and elaborate mosaic pavement in blue and white, the foliage being scarcely visible. A variety of the smaller *Convolvulus* termed *unicaulis* is also notable. Its peculiarity is, as the name implies, the production of a single stem, which seems to concentrate the strength of the plant in one head of flowers, consequently these came of great size and surprising richness of colour. *Larkspurs* are grown in variety, early and late, tall and dwarf, in many shades of colour, but the most striking of all is a soft rose-coloured double form which has the flowers so closely crowded on the stem as to constitute veritable wreaths. Sweet Peas are largely grown of many distinct shades of colour. One large patch nearly half an acre in extent of the *Invincible Scarlet* produced an indescribably brilliant effect, while correspondingly soft in shade was a breadth of *Painted Lady*, the upper petals or standard of which are bright rose, and the lower white. Both are handsome varieties, and as grown at St. Osyth they are as true as possible. *Tropæolums* next merit attention. The thoroughly useful *King of Tom Thumbs* was in admirable condition, the lines of dwarf compact plants appearing almost as if they had been moved to bring them to such an exact level. The foliage, as is well known, is very dark, and the flowers rich scarlet, but a selection named *Empress of India* is considered to surpass it. The plant is similar in habit and foliage, but the flowers are said to be much deeper and richer in hue; these, unfortunately, we were unable to see, as none was expanded at the time of our visit. Probably, however, visitors to the Kensington meetings will soon have an opportunity of seeing it. The fine *Marigold*, *Calendula officinalis Meteor*, deserves a passing word of notice, for its distinctive characters were well shown in a large bed of it there, very little variation being perceptible in the colours or markings of the flower heads. Some of these exceeded 3 inches in diameter, even and circular in outline, the florets being light orange yellow neatly margined with bright orange. Choice selected strains of *Pansies*, yellow, purple, and blue, were observable; one, the *Beauty of St. Osyth*, being a fine velvety black. *Rhodanthes*, too, were attractive, both the *Manglesi* and *maculata* varieties; and there, as elsewhere, an improvement in the old types had been effected by selection. This was a *Manglesi* form, very dwarf, remarkably profuse in flowering, and the flower heads of an uncommonly bright rose colour. Sweet-Williams were very handsome, some of the flowers exceeding an inch in diameter, of excellent form, substance, and colours. *Viscarias*, too, were abundant and attractive, especially the dazzling *V. cardinalis*; the dwarf bright blue *Lupinus nanus*, the double white *Chrysanthemum Dunnetti*, the bright yellow and pretty *Bartonia aurea*, with innumerable other beautiful plants, which cannot be noticed at length. We may conclude the notice of this portion by a brief reference to a remarkably dwarf *Mignonne* entitled *Golden Queen*, which forms compact plants about a foot high, branching freely, and bearing close spikes of yellow-tinted flowers. The closeness yet vigour of the plant is very striking.

Peas have been casually alluded to, and it is only necessary to add that several very promising novelties are on the way. One tall variety bids fair to be the latest Pea grown, and several other medium-height forms which appear unusually prolific and of good quality have not yet been named. But by far the most striking among the Peas was *Stratagem*, which is rather largely grown on this farm, and in every portion it was of similarly excellent appearance, the very short but strong haulm being loaded with large handsome pods well filled with peas. In some instances so abundant was the crop that it was jokingly suggested the pods had been placed on the haulm. Telephone was also in first-rate condition, and as any doubt as to its distinctness must have long since ceased, it is unnecessary to refer to the characters it so clearly bears there. Many other Peas are also grown for trial, and thus a good opportunity is afforded of testing their respective quality. With this we may conclude these few notes upon one of the finest-kept business establishments of the kind we have had the satisfaction of visiting.—VISITOR.

SHREWSBURY ROSE SHOW.

THE annual Rose Show of this flourishing Society was held in the Music Hall of this ancient town on Thursday, July 7th, with the enviable adjuncts of admirable management, lovely weather, numerous visitors, and superb Roses; yet, notwithstanding these indispensable elements of success, your reporter never found his expe-

rience help him so little in chronicling for this Rose Journal the leading features of the Exhibition. Mainly was this the case for the following reasons. The schedule is divided into two classes only (1), "open to all," whether amateur or nurseryman; (2) "open only to Shropshire and Montgomeryshire"—a plan obviously exposed to many fatal objections, and proved so here by an almost entire absence of competition in the former class. Mr. Jowitt, The Old Weir, Hereford, most pluckily competed against Cranston's Nursery and Seed Company, Hereford, with seventy-two single varieties, and made a close and gallant fight, or otherwise the latter would, uncontested, have had their own way throughout every class. The public, however, were little losers by want of competition, as Cranston's Company exhibited their very best, evidently with as much pains and in such a brilliant manner as if every prize was keenly contested and each point of consequence. Their forty-eight trebles, that *bête noir* of every exhibitor except a leviathan, and in perfect cutting form, was throughout absolutely faultless in brightly coloured smooth symmetrical blooms.

Thus wholly indebted as the Society was to the Hereford contingent, and admirable as were the exhibits it has been our pleasure to record, it is all the more regrettable that in staging the seventy-two varieties an unaccountable imbroglio followed in both these collections, which no impartial report could omit. In Cranston Company's collection H.P. Capitaine Christy was shown in duplicate, while in Mr. Jowitt's collection more than one irregularity was apparent—most unusual, it must be allowed, in the case of so skilled and experienced a stager. The management, on the recommendation of the Judges (there being no third competitor), equally divided the awards in this class into two special prizes, as the Roses on their merits richly deserved.

To particularise specially fine blooms in Cranston's seventy-two collection, single blooms, the following were grand specimens, including for the year a fine sprinkling of Teas:—H.P. Madame Charles Wood, superb; Teas Souvenir d'Elise, Anna Ollivier, and Catherine Mermet, each of fine form and size; also Tea Marie Guillot, H.P.'s Mdle. Julie Dymonier, a new stout-petalled pink Rose of undoubted promise; Louis Van Houtte, Dr. Andre, very smooth and fine; Mdle. Bonnaire, good size and exquisite purity; Abel Carrière, intensely dark; A. K. Williams, fine in usual colour and form; and Edouard Pynaert. In Mr. Jowitt's seventy-two collection specially noticeable were H.P.'s Madame Ducher, new and very promising; Duchess of Bedford, a great acquisition; Sir Garnet Wolseley, fine symmetry; Mary Pochin, fine colour, but too small; Mabel Morrison, a wonder of the season, perfect substance, with a dash of colour in just one outside petal to prove its sportive origin; and Duchesse de Morny, exquisite.

In Cranston Co.'s collection of forty-eight varieties not already mentioned, H.P.'s Countess of Oxford, Constantin Tretiakoff, superb; Mons. E. Y. Teas, Madame Noman, exquisite; Duke of Connaught, small, but compact and fine; Mons. Bonstettin, bright and black; Madame Ferdinand Jamain, neutral colour, of great substance, new and useful; Marquise de Montmartre, as seldom shown; Bourbon Souvenir de la Malmaison, clear flesh with no coarseness; and again Madame Charles Wood, each absolute perfection.

In twenty-four Tea and Noisette Roses, specially noticeable in Cranston Co.'s fine collection were Comtesse de Naidallac, Madame Lambard, and Innocente Pirola, new and very promising.

In the close division, open only to Shropshire and Montgomeryshire, exhibitors, with one or two exceptions, hardly showed their best. This much may be said by way of allowance, that a foot-note in the schedule of prizes officially forbidding any "artificial support" was as needless as it was cruel; indeed, most of the Roses out of their deep mossy graves seemed to helplessly point to their crippled charms, and mutely murmur a protest.

It only remains to mention that the Rev. John A. Williams, Yardley Wood, Birmingham, and the Rev. C. H. Bulmer, Credenhill Rectory, Hereford, acted as Judges throughout the several classes; and that, as is usual at these exhibitions, the Hon. Secs., Messrs. Adnitt and Naunton, thoroughly succeeded in the task they set themselves—to make everyone feel thoroughly at home, and the Exhibition, florally at least, a success.—THE HEREFORDSHIRE INCUMBENT.

GLASS STRUCTURES FOR AMATEURS.

VINES.

TEMPERATURE.—From the commencement of March the temperature should be kept at 50° artificially, and advance by sun heat to 60° or 65°, ventilation commencing from 55° and closing with sun at 65°. When the Vines are in leaf gradually raise the temperature to 55° at night and 60° to 65° by day, and 70° to 75° from sun heat. When the bunches come into flower the temperature should be increased to 60° to 65° at night and 70° to 75° by day, or a few degrees more from sun heat, and those temperatures should be maintained until the fruit is thoroughly ripe. Five degrees less at night will not be injurious, and the greatest possible benefit result from allowing an advance to 85° or 90° in the afternoon of fine days. The fruit being ripe, the temperature may gradually fall to 50° at night, and after October the house may be kept at 40° or 45° artificially, ventilating on fine mornings and very freely above 50°, closing between that and 45°. Grapes or the Vines that produce them, if assisted with a little fire heat in

spring, so as to give them a start and have them in a forward condition by the time summer arrives, will give much better results than those that have most of their work to do when the warm weather arrives and are not able to complete it before it becomes too cold for perfecting the crop. Grapes are so valuable that even those with but one house should strive to have them in the best possible condition. If a supply of Grapes be wanted, say in September, sun heat in most seasons will ripen the fruit fairly well without artificial aid, though those assisted are very much better. In this case only such kinds as Black Hamburgh should be grown; and even with what are termed "cool house" Grapes the assistance of a little fire heat in spring and when ripening, should the weather be unfavourable, will be very beneficial.

Ventilation.—The object of ventilation is to prevent the temperature from rising too high and induce a sturdy, healthful growth. At the commencement of activity in the Vines the house must be ventilated to suit the Vines, and not any other plants in the house, unless, of course, they are the primary object. The ventilation should commence from the minimum day temperature—i.e., 55°, and in such proportion as not to lower it. It is of the utmost consequence to attend to ventilation in the early stages of growth, so as to secure short-jointed wood and well-developed foliage. The ventilation should not only be commenced early and increased with the rising temperature, but it must be reduced early and gradually with the declining heat. The chief considerations are to admit air early, and thereby prevent scorching, and to close early. One example will suffice to show what is meant. Granted the Vines are in full foliage and the Grapes swelling, the temperature at night 60° to 65°, or it may fall to 55° without injury. The sun on a fine morning will soon raise the temperature 5° to 10°, or to 70° or 75°, when air should be admitted, increasing the ventilation in proportion to the temperature, allowing an advance to 80° or 85°. When the heat lessens close the house at 80°, and so timed that the temperature will, instead of falling, rise 5° to 10°, or 85° to 90°. It is not the afternoon but morning sun acting on cold moisture-laden surfaces that scorches. When the Grapes are ripening a free circulation of air is essential to good finish.

Moisture.—Damping the Vines may be practised every fine afternoon from the time the buds commence swelling until the flowers open, when it must be discontinued, and should not again be resorted to unless there is clear rain water at command, and then it may be continued occasionally on fine afternoons. The house should be well damped at closing time, and again if the surfaces become dry before night. When the weather is hot damping may be practised at noon as well as in the early part of the day. Syringing the foliage must cease when the Grapes show colour for ripening, and damping must be gradually reduced.

Watering.—The border must not be allowed to become dust-dry in winter, and when the Vines commence growing a thorough soaking should be given the inside border with tepid water. The border must not after this be allowed to become dry, supplies being given as necessary to keep the soil moist, which will be needed about once a fortnight after the first month, and once a week in hot summer weather. Afford a thorough supply when the Grapes are colouring, which will usually be sufficient to mature the crop; but there must not be any deficiency of moisture in the soil when the crop is finishing, or it will not do so satisfactorily. Liquid manure will be beneficial when the fruit is swelling and up to colouring.

I have not thought it necessary to enter into minute details upon other points in Grape culture, as they are from time to time treated in special articles, and instructions are given periodically in the calendar as well as in the correspondent's column. I will only add avoid overcrowding of the foliage, overcropping, and over-dryness at the roots when the Vines are in full foliage.—G. ABBEY.

GLADIOLUS COLVILLEI ALBUS.

WHITE flowers of elegant outline are so valuable for vase decoration, and generally so acceptable, that I am induced to say a word in favour of this chastely beautiful variety. The improved florists' varieties of *Gladiolus gandavensis* are most imposing and stately, but the spikes are too heavy to be of service for many purposes of floral decoration, and further, they are autumn rather than summer flowers. The earlier forms with their slender spikes and more thinly disposed flowers are, both as to their time of expansion and light and pleasing character, of special value to many cultivators. The early species and varieties are also very hardy, and are seldom injured by the disease that destroys the corms of so many of the others, and therefore these early sorts, and especially, I think, *G. Colvillei albus*, have claims to more extended cultivation. I have had plants flowering in pots, and they were

charming in the greenhouse a month ago, seven corms having been placed in a 6-inch pot at the time the Hyacinths were potted in October. Other corms were planted in clumps of a dozen in the borders, and produced a number of delightful spikes in June. No flowers in the garden were more prized than these by the young lady flower-gatherers whose duty and pleasure it is to render the drawing-room attractive, and the hundred corms planted last autumn have proved such a great success that I am urgently pressed to plant more, and shall certainly have great pleasure in doing so, for the wax-like flowers are most charming. —S. W.

THE ROSE ELECTION.

OUR Journal begins to teem with notes of the various Rose contests now coming on "fast and furious." The elections of the past two years have been partial, and not restricted to exhibition qualities—to many the one essential. It would seem, then, not inappropriate that in the parliament of Queen Rosa we might at least have a "general election" every three years and pin our faith on "triennial parliaments!" As it is to be an election of exhibition varieties it is necessary that there should be qualification for voters. We see no reason to lower the franchise. We take it that "every voter must be a prizetaker at a 'national' exhibition, or a frequent prizetaker at local Rose exhibitions." Any person thus qualified is hereby asked to assist by answering the following questions:—Name the best forty-eight exhibition varieties of the Rose. Distinguish the best twelve and second best twelve by some mark. The list will be considered as named in order of merit unless the contrary is stated. It will be noted that all varieties of the Rose are to be included. Latest date for returning the voting papers to me, August 31st.—JOSEPH HINTON, Warminster.



WE are informed that the STRAWBERRY FÊTE, which was held in the gardens of the Royal Horticultural Society at Chiswick on the 2nd inst., was a great success. The garden was crowded with a fashionable company, who evidently thoroughly enjoyed themselves, the weather being all that could be desired.

— MR. SHIRLEY HIBBERD will deliver a LECTURE ON THE CARNATION, in the conservatory at South Kensington, in connection with the Exhibition of the National Carnation and Picotee Society, at 3 P.M. on Tuesday next.

— A HOUSE-KEEPER writes to us as follows on PRESERVING FRUIT—"Some time ago I read in the Journal from one of your correspondents, that in preserve-making only a quarter of a pound of sugar to the pound of fruit should be used, the old-fashioned pound to pound being a mistake. Would some of your correspondents say if this is so, and if the fruit so preserved will keep?"

— WE have received from Mr. G. Bunyard of Maidstone the haulm and pods of a NEW PEA which came under their notice last year, one plant of which produced 380 peas. It has this season maintained its fertility. Mr. Bunyard states that "although of the Ne Plus Pea race it is a sport from Best of All." The pods are more curved than either of the varieties named, and are closely packed with dark green peas of excellent quality. Many pods contained ten peas, and the majority of them nine. The plant sent is very strong and short-jointed and about 4 feet high, the pods being produced in pairs.

— WE regret to learn, owing to some negligence of the railway authorities, that a skilled rosarian who had taken notes of the HEREFORD ROSE SHOW with the object of furnishing us with a report is unable to do so, as that portion of his luggage containing his notes appears to have been lost in transit. We hear that Messrs. Cranston & Co. staged magnificently at the

Show in question, and with Mr. Jowitt secured the premier prizes. We trust that our esteemed coadjutor will speedily recover his lost property, and that our readers will yet have the pleasure of reading his observations on the Show that he visited.

— "A WILTSHIREMAN" writing to a daily contemporary sends the following observations upon ASPARAGUS—"The wasteful way in which this delicious vegetable is cut and consequently brought to table is a striking example of the loss the public suffers, and apparently without complaint, in conformity to custom. When I see in the London markets the handsome bundles of large "grass," about six-sevenths of which is white and uneatable and only one-seventh eatable, and know that the same length might be sold for the same price all eatable, I cannot but regret the sad loss and waste of 600 per cent. on this article of food. The evil arises from cutting the Asparagus too soon and below the surface of the beds. I allow mine to grow 8 or 9 inches above the ground, and then cut an inch above the ground, and thus obtain 7 to 8 inches of green tops, the whole of which is eatable and of good flavour. Asparagus should be cooked standing in bundles in the pot with the tops just above the water to prevent their being overdone whilst the stems are being cooked sufficiently. If any of your readers who grow Asparagus will try this plan of cutting and cooking they will find they have saved the large per-centage I have mentioned, and better knowledge on the part of the public would soon bring green and eatable instead of white and uneatable Asparagus to market."

— THE enterprise of Americans is proverbial, and they are noted for turning everything to account. Even the PIG IN THE ORCHARD has its uses, for a contemporary states—"We have each year new remedies for protecting our Plums, believed by their inventors to be infallible, but most of them of no more utility for the purpose than moonshine. For the Plum-gouger, the pig in the orchard to eat all the early falling fruit, or the careful gathering of all such fruit and burning it; and for it and the Plum curculio the jarring of the insects from the trees at least once each day, in the cool of the morning or evening on sheets, and killing them, seems to be the only sure plan of getting a crop of Plums in orchard culture."

— THE WINE TRADE OF CALIFORNIA appears to be developing enormously. Mr. Consul Booker's figures show, that although the phylloxera seriously menaces the prosperity of some districts, the vintage of 1880 was close upon 12,000,000 gals.: 2,487,353 gals. of wine and 189,098 gals. of brandy were exported. A vineyard can be planted and maintained in California till its first year of production for from 70 to 75 dollars per acre. It is impossible as yet to make a classification of Californian wines. In the best districts varieties of Vines are still cultivated which deteriorate the quality of their characteristic products. In some places the cultivation of the best varieties suited to climate and soil has scarcely begun. Few vineyards, therefore, are capable of turning out completely blended and perfect wines. The scarcity of choice cuttings has frequently compelled the *vigneron* to plant whatever could be found most conveniently; but now that it has been proved to demonstration that it pays to grow the Vine in California, this lack of enterprise is not likely to last long. The capital already invested amounts to 30 million dollars, and provided that the danger from the phylloxera does not increase, it is soon likely to be quadrupled.

— THE HOT WEATHER experienced in most parts of England, and especially noticeable in London, during the first three days of the week, has, says the *Colonies and India*, led to the drawing of comparisons with that met with in other parts of the world. We believe that 86° in the shade is the highest temperature fairly registered by meteorologists this summer, though doubtless the

radiations from the pavements and walls in London streets has caused the mercury to reach a still higher grade. This is nothing abnormal, and an Australian, Canadian, or Anglo-Indian would consider it by no means unpleasantly warm. A temperature of 86° is that of an ordinary summer's day up-country in the Australian colonies, and outdoor work is in no way interfered with; the air, though hot, being bracing and uncontaminated by smoke, except perhaps from casual bush fires. But when the three-figure stage is reached there is little to be done but wait for a change. In Australia the extreme of heat is generally reached after Christmas; at Narrabri, in New South Wales, last March the mercury rose to above 103° in the shade for eight days in succession, and last summer at Bourke the thermometer registered from 105° to 114° for an entire week. We believe that the highest shade temperature recorded is that of 126° in Queensland some years ago, and meteorologists report that the country some three hundred miles north of Adelaide may be considered the hottest part of the world. But, except on the coast, the great heat of Australia and Canada is not depressing in its effect; and the rosy cheeks of the children in the interior tell plainly enough that it is not unhealthy. At Sydney it is very rare for the mercury to reach 100° ; at Melbourne it occasionally exceeds that figure, but only for a day or two at a time. There is no disputing the fact that a temperature of 90° at Bombay, Madras, or Calcutta, or on the Gold Coast, or in Mauritius, is more enervating than that of 100° at a bush station in Australia or the Dominion. So long as the air is perfectly pure and dry great heat is not unhealthy, except in the cases of invalids and very young children; and we doubt whether any English settler in ordinary health, and using precautions dictated by common sense, has ever been prejudicially affected by an Australian summer sun. [92.7° was registered on the 5th inst. by Mr. G. J. Symons.]

— WE have received the fourth part of the work entitled "NEW COMMERCIAL PLANTS AND DRUGS," by Mr. Thos. Christy, which, like the preceding numbers, contains a large amount of useful and interesting particulars concerning many exotic plants of economic value. Their chief medicinal properties, or their uses as affording various products such as fibre and rubber, are fully described, and in several instances illustrations are given showing the chief botanical characters of the plants. The following extract upon the Cearà Rubber (*Manihot Glaziovii*) will convey an idea of the general character of the work:—"The Pará (*Hevea brasiliensis*) and Central American (*Castilloa elastica*) Rubbers may be considered a failure as regards their becoming objects for cultivation in plantations in India, &c., however suitable they may be for planting in forests, where a quick return of profit is not expected. The limited range of country in which suitable climate and surrounding circumstances can be found in India, the difficulty of propagation, and the length of time which must elapse before a profitable and regular yield of rubber can be obtained, is entirely against their adoption as a source of income. On the other hand the Cearà Rubber is remarkable for its hardiness, and for its ability to grow in rough stony ground and in a wider range of climate and elevation. The ease with which it is propagated, and the speedy yield of rubber of good quality, render it a species peculiarly suitable for cultivation in India and Australia as a valuable source of rubber."

— ONE of the Judges who officiated at the BRACEBRIDGE SHOW, near Lincoln, last week, writes in terms of high approval of the groups of plants that were arranged for effect in one of the tents there. Without these groups the Show would have been a comparative failure, with them it was a great success. They were arranged on a strong stage raised a foot from the ground. The first-prize group of Mr. Wipf, gardener to W. Clayton, Esq., the High Sheriff of the county, was remarkable in having an

arch across the back covered with *Cissus discolor*, and from the centre there was suspended a fine *Nepenthes*. Mr. Ruston's group was a very close second, the back plants of *Ficus Parcelli* associated with *Trachelium caeruleum* having a beautiful effect. The other groups of Major Ellison, Mr. Greenham, and Mr. Shuttleworth, for which prizes were awarded, were all meritorious but as a rule this arrangement was too smooth. Fruit was good generally; some Grapes sent by C. Minton Campbell, Esq., from Staffordshire, being of great excellence, and Canon Hole's first-prize Roses were extremely fine and well arranged. Mr. Ellison's fine fruit garden was a source of great attraction to the visitors, and its condition reflects great credit on both the owner and gardener.

— A CORRESPONDENT of the "Prairie Farmer" referring to the FRUIT AND FLOWERS OF THE ROCKY MOUNTAINS says—"The Commissioner of Agriculture at Washington could do the horticultural industry of our country valuable service by a careful investigation of this region of country, gathering and sending out to intelligent cultivators many promising varieties of our wild fruits and flowers. In Currants we find a large variety of the Black, Red, and Yellow. The flora of these grand old mountains for variety and beauty cannot be surpassed by any country. Our Conifers on account of their beauty and hardiness are attracting the attention of western nurserymen. The beautiful dwarf Oak and the dark green Alder intermingle with Roses, Spiræas, Columbine, Lilies, and thousands of other flowers, while the Mountain Ivy and fragrant Clematis covering trees and rocks all combining to teach us that the Creator did not form these mountains and canyons as a hiding place alone for gold and silver, but has placed His richest treasures on the surface free and visible to all; and yet man in his greed for precious metals passes them all by unnoticed and unappropriated."

THE PAULOWNIA IMPERIALIS.

WHEN in Florence the middle of last April I was much struck with the flowers these trees were covered with, resembling a blue Foxglove, if there be such a flower. The scent also was delicious. I have tried without success to obtain a plant suitable for a pot. It would enliven a conservatory, and fill the house with its perfume. Can anyone inform me where it can be obtained? I also saw at Monaco, and in Dr. Bennet's garden at Mentone, a very beautiful Bougainvillea growing most luxuriantly, the bracts or floral leaves being of a deep purple and crimson colour. I should like to know the name of this sort. Dr. Bennet told me it came from the Brazils. A son of mine living in Assam informed me that this plant climbed up the trees and hung down in large festoons, and that it always killed the tree to which it attached itself. I had several cuttings sent home from Mentone. I believe they have all struck root.—PHILODENDRON.

[We have seen Bougainvillea glabra richer in colour in Italy than we have ever seen it in England. When your plants flower please send us a spray.]

ROYAL HORTICULTURAL SOCIETY.

JULY 12TH.

FEW exhibits were contributed at this meeting, but those few were of excellent quality, as was indicated by the awards of the two Committees to whom they were submitted.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. Mr. Wilkinson, gardener to Viscount Gage, Firlie Place, Lewes, sent dishes of Pitmaston Orange and Victoria Nectarines well ripened with a good Queen Pine Apple, for all of which cultural commendations were awarded. Mr. Wm. Taylor, The Gardens, Longleat, Warminster, sent two Melons; one very large, a selection from Eastnor Castle, and the other a superb example of the old Cashmere, the flavour being grandly developed. A cultural commendation was awarded for this Melon, which was unanimously decided to be one of the best flavoured ever brought before the Committee; indeed it quite spoilt the others exhibited at the same time. Mr. Carmichael, The Gardens, Nowton Court, Bury St. Edmunds, sent a seedling Melon, a cross between A. F. Barron and Dickson's Exquisite; it was a green-fleshed variety of good size and fair flavour, and the Committee expressed a desire to see it again. Mr. C. Ross, gardener to C. Ross, Esq., Welford Park,

Newbury, and Mr. John Butcher, Stratford-on-Avon, also sent Melons that were not of unusual merit. Mr. H. Shepherd, gardener to J. Billingham, Esq., Moorcroft, Cobham, Surrey, sent a twin example of Cucumber Empress of India. Mr. R. Dean, Ealing, exhibited a kidney Potato named Early Comet, a cross between American Success and Woodstock Kidney. It is to be tried at Chiswick.

FLORAL COMMITTEE.—J. McIntosh, Esq., in the chair. Messrs. H. Cannell & Son, Swanley, exhibited several stands of Zonal Pelargoniums, including the dark scarlet Henry Jacoby, the dazzling scarlet Nemesis, and the white form Eureka certificated at the beginning of the year. Some fine Larkspurs and Verbena blooms were also shown, a number of good varieties of the latter being represented. The best were Mellendens grandiflora, bright scarlet, white eye; Sir Garnet Wolseley, bright purple, very large; Edward Perkins, white, pink eye; and Dr. Feyerlin, very deep purplish crimson. Several other new streaked and parti-coloured varieties were staged. Flowers of a Solanaceous plant named Nicotiana affinis were also sent; they have a long tube and spreading ovate white petals, possessing a powerful fragrance. The plant is an annual, and is said to thrive well out of doors. A vote of thanks was accorded for the collection. Mr. W. Bull, Chelsea, sent a collection of new plants, among which examples of the following—Disa grandiflora Barcelli, with large bright scarlet flowers; the peculiar Senecio stenoccephala, with deeply heart-shaped and sharply serrated leaves, and tall close spikes of yellow flowers; Pellionia Daveauana, a pretty little stove plant suitable for growing in a shallow pot or pan; a fine Rhopala named R. Jonghei, and several forms of Odontoglossum vexillarium. A group of "decorative" Nosegay, Zonal, and Ivy-leaved Pelargoniums was sent from Chiswick, several very pretty varieties of Lemoine's raising being represented. One pretty unnamed variety with neatly fringed circular pink and white flowers was noticeable, and one named Madame Harmant with large even white flowers slightly feathered with crimson at the base was also noteworthy. The well-known and handsome Madame Thibaut was in good form with large trusses of its brightly coloured flowers. Several were certificated both by the Floral Committee and the Pelargonium Society, and are described below. Cranston's Nursery and Seed Company sent flowers of the new H.P. Rose Mary Pochin, referred to on another page. Mr. Hodges, gardener to Mr. Edwin Wright, Gravelly Hill, Birmingham, sent flowers of Cattleya gigas imperialis, very large and richly coloured, for which a vote of thanks was accorded. A similar award was granted to Mr. C. Osman, Sutton, Surrey, for flowers of a bright salmon scarlet Zonal Pelargonium. A vote of thanks was accorded Mr. G. F. Wilson of Weybridge for a plant of Hibiscus Hugeli, a distinct and curious species. The leaves are deeply cut into five segments, and closely resemble some of the fragrant-leaved Pelargoniums, the flowers being of a soft purplish mauve with rounded petals, and about the size of a large Mallow, but not spreading as in that plant.

First-class certificates were awarded for the following plants:—

Lælia Philbrickiana (Veitch).—A very pretty hybrid between Cattleya Acklandiae and Lælia elegans. The flowers are borne in short racemes; the sepals and petals of a glossy purplish colour spotted with a darker shade; the lip two-lobed and very rich crimson in tint; two lateral wings being nearly white, and the column purple. The leaves are 3 to 5 inches long, and the bract elliptical in form. The Cattleya parentage very strongly predominates in the flowers.

Carnation Gloire de Nancy (Veitch).—A charming variety with full pure white flowers, extremely fragrant—quite a Clove perfume.

Croton rubro-lineatus (Veitch).—A showy form with leaves a foot or more long, 2 to 3 broad; the midrib bright crimson streaked laterally with yellow, and blotched with green between the veins. Very bright and effective.

Athyrium Filix-femina acrocladon.—A pretty dwarf Fern from A. Clapham, Esq., of Kensington, and suggestive in general appearance of the Parsley Fern, Allosorus crispus. The fronds are very neatly crisped, and being only a few inches high it will no doubt prove useful as an edging plant either for the stages of a conservatory or for groups.

Oenkovskia Kirkii (Bull).—A Scitamineous plant allied to Kämpferia, with bright shining green tapering leaves 12 to 15 inches long. The flowers are borne several together at the top of a scape about 10 inches high. There are three large round pink petals, the lower one considerably the largest, and dashed with yellow in the centre.

Oncidium Gardnerianum (Bull).—A handsome specimen of this fine Orchid was shown, bearing several panicles of large flowers. The blooms are about 1½ inch in diameter; the lip rounded, bright yellow, and edged with light brown, the sepals and petals being barred with yellow and brown.

Iris Kämpferi Seraph (Bull).—One of the double forms, the petals being white tinged and edged with purplish blue. Very delicate in colour.

The following were shown from the Society's Chiswick Garden, and were mostly Lemoine's seedlings:—

Pelargonium No. 76.—A pretty "decorative" variety with neat circular bright rose and white flowers, having fringed margins. Very free and attractive.

Pelargonium Madame Harmant.—Also a decorative variety, with

white flowers of good form and substance, slightly streaked with purple at the base of the petals.

Pelargonium Mont Blanc.—An Ivy-leaved variety with very full double white flowers, which have a very faint pink tinge in the centre. Truss large and compact.

Pelargonium Henri Cannell.—A double Zonal with a large full truss and very dark rich scarlet flowers. Especially remarkable for the depth of colour.

SCIENTIFIC COMMITTEE.—Dr. M. T. Masters in the chair.

Gooseberry Blight.—Mr. W. G. Smith observed that he had discovered Uredo-like-spores upon the same mycelium which produced the *Æcidium grossulariae* on the surface of the fruit exhibited last time.

Liriodendron.—Mr. G. S. Boulger exhibited a blossom of Tulip Tree, which appeared to be a distinct variety from the common form. Although but one species is recognised Dr. Masters observed that at least two varieties were recognisable—the variegated and an entire-leaved form.

Gymnadenia conopsea.—Mr. Boulger also exhibited a very fine spike of this Orchid.

Tonga.—Dr. Masters exhibited the dried plants yielding this drug. It consists of stems of an Aroid, Raphiodophora, and leaves of a Verbenaceous tree. It comes from Fiji.

Pear and Pelargonium Leaves.—He showed specimens of the former attacked by some mites or other insects, and the latter spotted, apparently by bad cultivation.

Anthurium Kalbreyeri.—A very fine specimen of this plant was exhibited by Mr. Veitch from New Grenada. It received a botanical certificate.

Malformed Digitalis.—Mr. Henslow showed drawings of a Foxglove in which the corolla was split up, some of the divisions being converted into stamens.

HEXACENTRIS MYSORENSIS.

SOME weeks ago a correspondent sent us a spray of this beautiful stove climber (see next page), accompanied by the following remarks—"A plant of Hexacentris mysorensis is now flowering profusely in my stove, and is so bright and curious in its flowers that all who see it admire it very much. That so attractive a plant, and one that has been so long in this country, should remain comparatively unknown or neglected is a great surprise to me, and my object in writing these few lines is to draw attention to what I find a really valuable plant. My specimen is, perhaps, a dozen years old, and is trained up a pillar and over the central walk in a large span-roofed stove, and when the fine pendant racemes of large rich crimson and yellow flowers are produced in profusion the beauty of the plant is almost indescribable. The plant is growing in a small prepared border of light loam, peat, and sand; and, as the root space is very limited, we occasionally give a good supply of very weak liquid manure, which greatly encourages the growth and increases the size and brightness of the flowers. Little attention is required in pruning, removing the weak shoots and the unripened portions of the others being the chief requisites in this respect. Though an old plant it certainly deserves to be more generally grown at the present time than appears to be the case, and I cordially recommend it those who may desire a distinct and beautiful addition to their stove climbers."

SHOULD FLOWERS BE DRESSED OR NOT?

"I HAVE been looking over some back numbers of the Journal and have read many communications on the subject of dressing flowers, but so far as I can judge the advocates of the practice are confined to those whose great object appears to be to win prizes at exhibitions, while the opponents do not appear to be exhibitors, but just ordinary cultivators, and, perhaps, care more for growing Potatoes and Grapes than flowers. Both parties, therefore, appear to be prejudiced, perhaps without knowing it; and I should like some grower of flowers who can judge calmly to give his views on this subject, which has been warmly discussed in our bothy."

The above letter has been submitted to me with a request that I give the subject of it consideration, and forward such a reply as I deem suitable under the circumstances. I have not been in a writing mood of late, and the subject is not a particularly inviting one, as there are so many people having stronger views than I entertain, on whichever side of the subject their sympathies lie. Still I will endeavour to treat the question on its merits, and shall much regret if there are any readers sufficiently sensitive to feel in the slightest degree uncomfortable by anything I may say in reference to a practice in which they are interested.

In connection with this practice of dressing flowers it will be well to remember that there are two distinct classes of cultivators whom it interests—the larger class, who grow flowers for home decoration; and the smaller, who grew them for exhibition. This fact being recognised, there can be no surprise at the differences

of opinion that prevail on the subject. For the purposes for which probably fifteen out of every twenty cultivators grow flowers a high style of dressing is not required, and if it were it could only be effected at the sacrifice of other more important

duties that ought at the same time to be discharged. A high artificial system of dressing flowers will never be popular with gardeners and the great majority of cultivators, for neither themselves nor others for whom the flowers are provided consider that

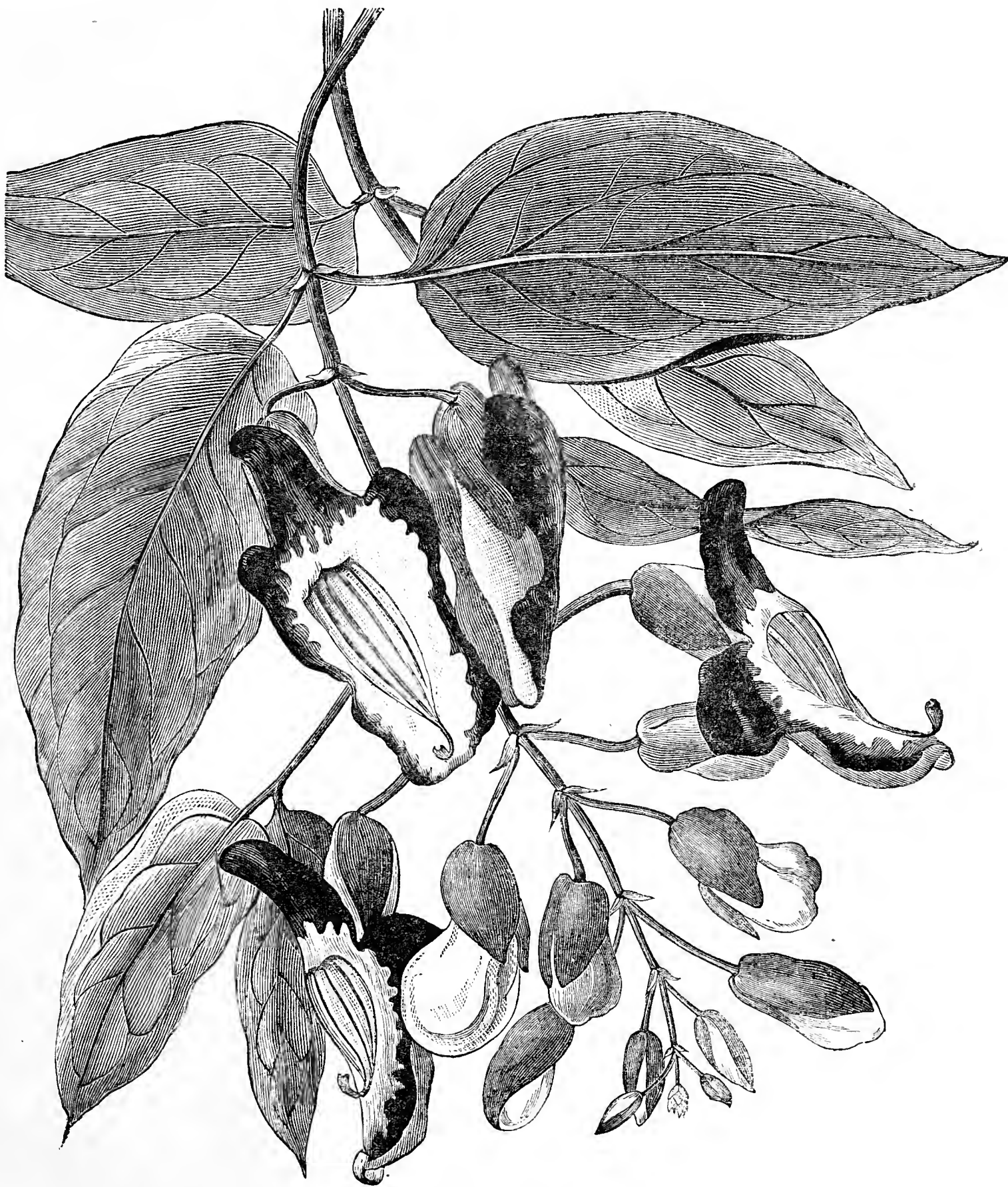


Fig. 7.—*HEXACENTRIS MYSORENSIS*.

these are enhanced in beauty by any serious manipulation of their petals. They prefer the flowers to be as well grown as possible—large, bright, and full; but would never think of discarding a flower from a vase, or rejecting it from the bouquet or button-hole, because of a faultily marked petal or two, according to the florists' standard. In fact, what may be a glaring fault in the eye of the

florist is not regarded as a fault of any importance by the cultivator who grows flowers for home or garden adornment, and yet one class of growers may love their flowers as ardently as the other.

But, apart from the gardener's point of view, there are a great number of persons of education, taste, and refinement who do not

consider flowers—say Carnations and Picotees—improved by the dresser's art, and their objection to them is simply this, that the flowers when dressed look too much like the artificial productions which are so cleverly manufactured and arranged in shop windows; and I almost think that the more perfectly artificial flowers are manufactured, in the same ratio is the taste for flowers well grown, but possessing the free, chaste, delightful forms and markings of Nature, increased.

Without any amalgamation of effort the love for flowers is increasing. If we look at the trade in flower seeds and plants as it was half a century ago and look at it now it is evident that the taste for flowers, undressed flowers, has increased prodigiously—so much so that it is not easy to appreciate its magnitude; but has the increase of those particular florists, whose standard consists of highly dressed flowers formed and marked according to prescribed rules, increased in the same ratio? I think not. The weight of evidence of the aggregate number of growers and lovers of flowers is in favour of those flowers that have been produced by good cultural care, but aided so far as regards the arrangement of their petals by little or no manipulative dexterity.

But while well-grown and undressed flowers are preferred for quiet home adornment, a different class of flowers is requisite for the exhibition stands. Undressed flowers have little chance of gaining honours there—not because such flowers are less beautiful in the estimation of the majority of cultivators than flowers that have been dressed, but because the former do not approach the standard—a fancy standard after all—that the professional florists have established. There is no reason that one section of growers should quarrel with the other; both have their "fancies," and have a right to enjoy them, and both can adduce arguments in favour of their own practices.

But the advocates of dressing occasionally weaken their position by attempting to prove too much. They go so far as to assert that pruning trees, training plants, thinning Grapes, trimming and cleaning horses, washing faces, &c., are analogous to dressing Carnations according to the present high style adopted by the florists. The analogy referred to is wholly fanciful, and is not based on any sound principle. It is an axiom that if you destroy the premises on which an argument is based the argument of necessity falls to the ground. The practices referred to in the animal world, then, are indisputable necessities inseparable from cleanliness, health, and civilisation. The arbitrary rules of dressing flowers are founded on no such bases—in fact, there is no such analogy as represented, because on one side the practices are founded on natural principles, and the other on the fanciful notions of individuals. Pruning trees, training plants, and thinning Grapes are also necessities that are admitted—essentials of cultivation. A wall tree or a Vine must be pruned, or it is impossible they can serve their purpose or bear fruit satisfactorily. It is similarly indisputable that Grapes must be thinned. No mere fancy of an individual can endure for a moment against an admitted necessity. Plants, too, must be trained, or they fail wholly and entirely in the purpose for which they are cultivated. If a limited amount of space has to be occupied with certain plants, or plants are required for an obvious purpose, it is equally obvious and indisputable that the plants must be trained and produced accordingly, or failure results. The comparisons instituted, in fact, are not debateable on any common principle. No one can say that plants should not be trained, but thousands of excellent cultivators and real lovers of flowers do not consider that flowers are improved by excessive manipulation of their petals.

The general unpopularity of dressing flowers as at present conducted is evident from the fact, that notwithstanding the efforts made to extend it during half a century, the energy of its promoters, the contributions of its adherents, and the aid rendered by the press in reporting exhibitions of such flowers, the societies under whose aegis they are placed do not appear in such a flourishing condition as their promoters desire. If those societies and their mode of exhibiting adopted in connection with them have the sympathy of the flower-loving public generally, donations and subscriptions will flow in; if not, a powerful negative answer is supplied, that however strongly certain florists feel on the subject of flower-dressing the practice is not popular, and it is questionable if there are a greater number of flower-dressers now than there were thirty years ago. I think mere trimness, primness, and formalism are on the wane in gardens, and it does not now appear the general desire that Nature should play second fiddle to Art. Still, where the object of growing certain flowers is to obtain prizes the flowers must be produced in a condition to win them; or to sum up the question in a sentence, it does not appear to be necessary to dress flowers to be admired in the garden or in rooms, but they must be more or less

dressed for securing honours at an exhibition.—A NORTHERN GARDENER.

ROMFORD HORTICULTURAL SOCIETY.

THE above Society held its summer Exhibition on the 7th inst. in Marshall's Park adjacent to the town, the weather being all that could be desired for the occasion. Taken on the whole it was the best summer exhibition we have seen at Romford, the exhibits being above the average. Stove and greenhouse plants were well represented by Mr. Bones, gardener to D. McIntosh, Esq., Havering Park; Mr. Douglas, gardener to F. Whitbourn, Esq., Ilford; and Mr. Young, gardener to O. E. Coope, Esq., Rochets, South Weald. Mr. Douglas contributed half a dozen Orchids, which were a great attraction, amongst them being a finely flowered *Oneidium macranthum*, a *Masdevallia*, an *Epidendrum vitellinum*, &c. The same exhibitor also contributed a stand of Carnations, which were much admired. Mr. Bones was first for stove and greenhouse plants, his collection containing good specimens of *Crassula coccinea*, a finely bloomed *Clerodendron Balfourianum*, *Erica Paxtoni*, an excellent *Ixora*, and a finely bloomed specimen of *Bougainvillea glabra*. Mr. Douglas was second with a fine *Clerodendron*, *Erica ventricosa* *Bothwelliana*, *Statice profusa*, an *Aphelaxis*, *Bougainvillea*, and *Dracophyllum gracile*. Mr. Young also contributed some good plants; a freely grown and not too formal *Clerodendron*, and a good *Genetyllis*. Mr. Douglas secured the first prize for the best specimen plant, and Mr. Young second. Foliage plants were well shown by Messrs. Bones and Young. Exotic Ferns were also exhibited in good form by Messrs. Young, Bones, Meadmore, and Woodhams.

Roses were very good in quality, Messrs. Cant of Colechester being first with an admirable stand, Messrs. Meadmore and Saltmarsh following in order; very few of the new varieties being exhibited, but some of the old sorts, especially *Marie Baumann*, were, as usual, excellent. The Rev. J. H. Pemberton was successful in his class. Mr. Bones contributed some fairly grown *Fuchsias* for the season, and Messrs. Saltmarsh & Son a fine collection of *Tuberous Begonias*, equal to any we have seen this season. The best-arranged basket of plants in pots was sent by Mr. S. Ford, nurseryman, Warley. *Gloxinias* were also shown in good condition by the same exhibitor. Variegated *Pelargoniums* were well shown by Messrs. Meadmore and Saltmarsh & Sons. Zonal *Pelargoniums* were also shown by Messrs. Meadmore, Harrington, and Mr. James Hooper. The *Caladium* and *Coleus* did not call for special notice. The best single bloom of any Rose—Mr. Ford first, Mr. Woodhams second, Mr. Nairns third. Twelve Roses, not open to exhibitors in other classes—viz., forty-eight and twenty-four—the prizes being secured by Messrs. Burgess, Nairn, and Brunt. For the most tastefully arranged vase of cut flowers for table decoration Messrs. Douglas and Soder were successful. Cut flowers in bunches were shown by Mr. Douglas, Mr. Bones, and Messrs. Saltmarsh & Son; Pansies by Messrs. Saltmarsh and Son, and by Mr. Ford.

Fruit was exhibited in goodly quantity, but the Grapes were deficient in colour. Mr. Carver first, Mr. Fairman second, Mr. Foster third. White Grapes.—Mr. Carver first, Mr. Foster second, Mr. Worthing third. Collection of Fruit.—The only competitor was Mr. Brunt, gardener to Lieut.-General Fytche. Melons, Green-fleshed.—Mr. Foster first with an excellent *Golden Perfection*, Mr. Brunt second with *Thornton Hybrid*. Strawberries were fine and very bright in colour, having evidently benefited by the heavy rain of the previous Tuesday. Excellent dishes of *Eleanor* and *Loxford Hall Seedling* were shown; the former, although an old variety, is not to be despised, and as a late variety is invaluable. Gooseberries, Currants, and Raspberries were also abundant and good. A dish of last year's Apples was exhibited in fine condition, the fruit being large and fresh-looking. It was represented as a good kitchen Apple, and bore the name of the Staepoole—I think the name of the raiser.

The vegetables were good and abundant, the baskets of eight varieties being fine and well set up, the prizes going to Messrs. Bones, Brunt, Douglas, and Soder.

The cottagers' productions were remarkably good, and did great credit to the producers; and in a class specially for amateurs there was excellent competition. Altogether the Show may be considered quite a success.

A BOUQUET OF WILD FLOWERS.

WHAT was recently said about double flowers has been freely criticised, and we are glad at the result. One critic wonders if we think wild Pansies anything but weeds compared with cultivated flowers. We appreciate cultivated Pansies, but after all they are not really so very much lovelier or sweeter than the wild Violet. They are larger, and the varieties are numerous; but there is a limit to the enjoyment of mere variety. It is said that double Roses are more beautiful than single Roses; that the Duke of Edinburgh is transcendent in its beauty compared with the Dog Rose. Roses are very beautiful undoubtedly, but not one double Rose in all the long list possesses the simple elegance and quiet beauty of the Briar. *Maréchal Niel* cannot be dispensed with, nor *Beauty of Waltham* either; but the sweet blossoms on the Briar in June are more pleasing.

Dahlias and Hollyhocks, and a host of other prim, double, artificially moulded flowers, are paraded as among the "grand" productions of the florist. A mass of flaming Hollyhocks doubtless make a brave show when backed up with taller greenery behind, but anyone who thinks that such flowers ought to be ranked high possesses but a poor taste. For making a show they are very fine; for close examination they are very poor. They are "monstrous" abortions, wispy deformities, and are far behind a good strain of single Foxgloves, or single Hollyhocks even, either as landscape flowers or for being individually inspected, and the same is true of the Dahlia. Variety is wanted in single Hollyhocks and single Dahlias, and other single flowers, including Roses, for the production of double flowers of all kinds has gone much too far.

We hold tenaciously by the position taken up in our "protest," and are not greatly concerned whether the majority are with us or not. The decided "Yes" with which some have answered the questions "Is our sense of the beautiful to be measured by inches?" and "Is beauty become a matter to be decided by arithmetic?" is at least simple, and more to be commended than the "much counsel darkened with words," and not understandable of others. It was not, however, what the critics have said that impelled us to take a pen in hand, but a bouquet of wild flowers which stands before us now. We have a Fern case filled with the fruits of many an exploring ramble in the glens. These we would not exchange for a whole houseful of *Adiantums* and *Pterises*. So our glasses might be filled with garden flowers, but we love the wild ones better, and therefore the flowers which cheer us when the day's work is done are wild flowers gathered by waysides, hedgesides, and other spots where the gems below-named grow.

The first to be named is the common Ox-eye Daisy—the Horse-gowan of our young days. It is a little too common, or its merits would have been recognised before now. It is despised, but if only those who despise it would look at its spotlessly white petals their opinion would change. Compare it with the now popular Paris Daisies and see which stands the ordeal best. Some think that its golden centre spoils it. Look at the arrangement of the florets in that centre, and compare it with the back of your watch if it be a plain one, and you will see that it has at least furnished a design, long considered inimitable, to the watchmaker. Again, one of our best flower gardeners has pronounced the combination—yellow and white—when in a flower bed to be a soft and pleasing harmony.

The elegantly-cut snow-white flower which stands all over and above the bouquet like a veil is the *Stellaria Holostea*, and a beauty it is, which no garden flower need pretend to rival. The small tufts of still smaller flowers which form part of the bouquet are composed of the sweet-scented *Woodruff*, *Asperula odorata*, a plant so common and so much appreciated for planting on rockeries and rooteries and similar positions, and for scenting clothes, &c., that no one will seek to dispute its charms. These are all the whites, with the exception of a spray of *Guelder Rose* found by a river's side, and which had probably escaped from cultivation.

Of yellows the first is the small, elegant, and sweet *Lady's Bedstraw*, which resembles in odour and in size of flower the little *Woodruff*. The next among the yellows is the common *Buttercup*, or, as my children call them "cuppy shells." A yellow *Mimulus*, and a bonnie little yellow one which we are unable to name belonging to the same order (*Scrophulariaceæ*), and the well-known *Water Iris* complete the list of yellow flowers. Among the blues are three or four species of *Forget-me-nots* and three *Veronicas*. Praising the *Forget-me-nots* is unnecessary; but we will stay to say that the little *Veronicas*, which in June gem every wayside and waste, are quite as lovely as are the *Forget-me-nots*. Blueish but not blue are the splendid *Geraniums pratense* and *sylvaticum*. We gathered *G. pratense* in a meadow where thousands of flowers waved, and a more enchanting sight it would be difficult to imagine. The *Bluebell Hyacinths* we found where they grew in acres. The humble but pretty wood *Violets* and the wild *Pansies* grew together by a stream.

Among the reds were first the *Ragged Robin*, or, as it is sometimes called, "Torn Jacket," and also *Cuckoo-flower*: its botanical name is *Lychnis Flos-cuculi*. When a man has many aliases beware of him. When a flower or a fruit or a vegetable has, get acquainted with it. This one with the many names we commend to the florists as one which Nature presented us to show that pennies were not her model, and we recommend her "novelty" to them. Robin's near friend the red *Campion*, which comes nearer the artificial standard, we found on a bank. There was a large bed of it, but its otherwise blazing colour was toned down by being mixed and surrounded with tender green.

We have red *Clover* in our bouquet, and it is as good as many

a garden flower. There are spikes of *Orchis mascula* and *O. pyramidalis* of a reddish tinge, and these like many more wild flowers, and unlike not a few garden and especially double ones, will only prove how beautiful they are when peered into. Last, by no means least, among the red flowers of our bouquet are buds and open blossoms of *Rosa canina*. We will not praise it, but we ask those who have never done so to look at the flowers closely, and not as if there were no beauty in it than can be seen at a glance. Among our yellows we forgot to mention the yellow *Broom* and the little yellow *Lotus*. Grasses stand up through the whole, and as a fringe there are *Lady*, *Oak*, and *Beech Ferns*, and altogether it would be difficult to match our bouquet with all the wealth of the garden from which to choose materials. Only a few of the flowers have been named, which may be found anywhere almost in the country in summer, and we know of no more enchanting treat than to wander by the brawling stream, the braes, and explore the "dens" in summer time, in order to gather the spoils which gem the earth, and to give them to those we love.—SINGLE-HANDED.

PRESENT-DAY FLOWER GARDENING.

[Abridged from a paper read at a meeting of the Scottish Horticultural Association by Mr. R. P. Brotherston.]

To arrive at a somewhat correct idea of the flower gardening of the present day it will, perhaps, be of some advantage to cast our minds for a few minutes into the past, say fifty years back—that glorious period for the gardener when no propagating in spring and autumn ever disturbed the serenity of his quiet life; when the trimming of a hedge, the building of a hotbed, the correct nailing of a fruit tree, were only relieved by the gentle excitement of carrying torches of burning paper through his hothouses to supplement the heating power of his flues in keeping king Frost at bay. These were the days when a gardener could afford to do things well. Then he planted fruit trees to benefit the succeeding generation, and established Vines to outlast the vineries that covered them. In these days one of the chief accomplishments of his assistants was the knowledge of the names of the greatest possible number of flowers; the days when the process of setting Melons was regarded as a mystery. But during the next quarter of a century the world made way in great strides, and all these things were becoming common.

During that period what some term a "monster," others an "idol," appeared, and invaded almost every garden in the land. It had to be put up in the best quarters during the winter months, through the spring time it appropriated all available space in glass structures, and a new class of frames had to be invented to prepare it for the outside weather. Throughout the summer and autumn months it filled series of beds and borders specially prepared for its reception and for the display of its gaudy beauty. It grew beyond the bounds of these, kicked the poor old Bachelor's Buttons, *Gentianellas*, the Pinks and the Carnations, and all the hardy kith and kin into the rubbish heap, and established itself in their places; then overran Vine borders and Peach borders, and took possession of window boxes. By-and-by it selected all the hardy flowers suitable for its own ends, and spread itself a floral carpet in the spring; then filled the beds in winter with particoloured greens from the kitchen garden and miniature trees from the woods, and worse than all began to fill the gardener's mind, and left little room for thoughts of building hotbeds or clipping hedges, so long as they were out of the ken of his new charge. The correct way to nail fruit trees began to be forgotten, and gardening students hardly knew there had been Bachelor's Buttons and Pinks! A few years later the "Kayis" in their glaring yellow, the "Kings" in their royal purple, and the "Tom Thumbs" in their glowing scarlet, which had reigned so long without a rival, had their rights disputed by a race of foreigners popularly known as subtropicals; and following closely on these came a race of dwarf-growing foliage plants, which were amenable to the torturing arts which had been forgotten since the days when the topiarist cut out living shrubs into peacocks and vases!

But now another class of flowers began to find a place in gardens here and there throughout the country; and a select band of writers whose glory it was that they had not bowed down to nor worshipped the idol, attacked it strongly with the avowed purpose of driving its image from the fair face of the earth. Those who could not be brought to anathematise the system of bedding-out and hurl it from their gardens were lectured on their "depravity," and advised to furnish themselves with colours and brushes, and lay down their beds and borders permanently in oils. The most telling adjectives were employed in depicting the beauties of what were sometimes mere weeds, and in denouncing everything on which the enemy had set its seal; yet "bedding-out" is with us still, a part of our gardening institutions.

For the past week or two this work of "bedding-out" has been engaging the attention of most gardeners, and it will be only fitting after having thus glanced at the way it has worked itself into gardens to give it the first place in this notice of present-day gardening. The bedding-out of to-day is something quite different from what it was even so late as fifteen years ago. The glaring contrasts and overpowering colours of that time have been done away with to a

very great extent. The trimness of that period has been modified by the introduction of plants of graceful habit or beautiful foliage, selected from the subtropical plants which were fashionable for a short space. Carpet bedding in its worst aspects is being got rid of, and the gardener has begun to see that cutting-up a small rectangular or circular piece of ground into a lot of ingenious lines, and planting the whole with a combination of various colours, has not the slightest approach to true beauty. As with beds filled with flowers so with those filled with carpeting plants, simplicity in arrangement and colouring gives the greatest amount of pleasure. Another point in all flower beds, which perhaps is not so common now as we hope to see it in the future, is making them as much as possible a part of the lawn on which they stand. Every flower bed should rise from the grass by which it is surrounded without any portion of bare soil intervening between the flowers and the grass; the flowers, in a word, ought to rise out of the grass.

In autumn we cannot dispense with strong colours, but it is not a necessity that we should make them glaring in their intensity by placing strong colours in proximity. By using neutral shades and harmonising the strong colours we are obliged to use, the most fastidious taste need not be offended. And there is, again, in the matter employing a great number of neutral-tinted foliage plants, such as dwarf Sedums, Sempervivums, and various plants of a green shade to the exclusion of colours of a rich shade, an insipidity that

There is another form of flower gardening which has advanced a slight degree during the last few years, a form which may be designated shrubby gardening, and which is a mixture of flowers amongst shrubs. As a feature in pleasure grounds I am hopeful of seeing the whole arrangement of shrubberies changed. Not only in small enclosures of a few acres, but on the largest estates, where hundreds of acres are enclosed, the shrubs are almost, without exception, fighting amongst themselves the battle of the "survival of the fittest," which means, as a matter of course, the strongest-growing Laurels. I would allow every shrub to stand by itself quite clear of its neighbours, and with a carpeting of grass under and around it. It would take a little more space to form blocks to views and screens on this system; but the improvement would in all respects be so great as to be worth much more space being devoted to Conifers and evergreens.

Then we have "gardening on the grass," a style which has come down to us from before the time of the memory of the oldest inhabitant, and which Mr. Wm. Thomson pointed out the other week as being quite common throughout Scotland. This is a form of gardening which, from my own experience, is suitable only for spring and early flowering bulbous plants and flowers which, like Primroses, are not harmed by having their foliage removed by the scythe in summer. It is an adjunct to the garden, but does not and cannot supersede the cultivation of flowers in beds and borders; but even in this style of

gardening it is curious how the spirit of "bedding-out" is still to be found. Just conceive the want of taste, and the knowledge of the fitness of things, displayed by that gentleman who has a St. George's Cross and the initials of his name (in enormous capitals no doubt) worked out on grass in a field before his windows with nodding Daffodils! Talk of "depravity" amongst gardeners! Surely they do not indulge in such vagaries as this!

Perhaps the best feature in the aspect of the flower gardening of to-day—from the gardener's point of view, of course—is this, that there is no necessity to follow every shifting current of change. In the days when Pelargoniums, Calceolarias, and Verbenas reigned supreme and unassailed, a gardener was ashamed of himself if he was without the trio. He can now follow the bent of his own mind so long as he carries the approval of his employer with him, and go in for Lilies and Daffodils and "æsthetics" generally. He may even grow single instead of double Daisies; he may also continue in his "depravity" and cultivate the flowers of the paint pot, and still find admirers of all or every system; but above everything let him not imitate the person who had a certain long-eared animal to dispose of at a neighbouring market, and who in trying to please everybody by following that many-minded individual's advice, was so unfortunate as to lose his "neddy" through his too obliging behaviour, and to be called a fool for his pains.

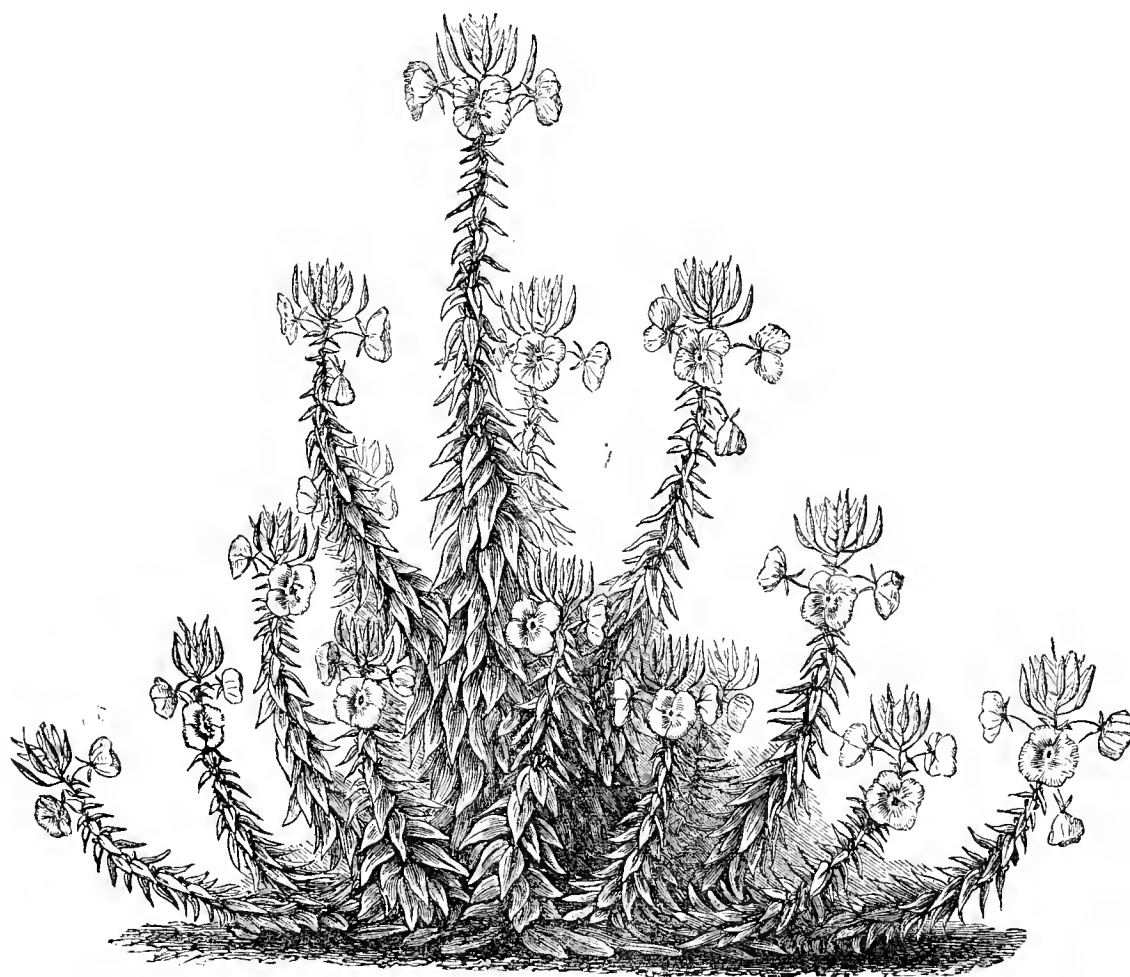


Fig. 8.—*Oenothera Lamarckiana*.

will hinder this style of planting from gaining ground. Besides, any system of flower gardening which places flowering plants in a position subordinate to those remarkable for the beauty of their foliage alone, is never likely to gain general and lasting approval.

Turning now to hardy plants, it is only fair to notice here, that through all the fever of excitement produced when that feature of gardening called "bedding-out" was at its height, there were still many gardens throughout the country which maintained in their integrity the old herbaceous borders. True, there might not be one plant in every 10 yards worth keeping, but this fact nevertheless remains, that through all the bedding-out period these borders have been kept intact, living museums as it were of the gardening of the ancients. Some, again, were improved more or less by the addition of the best of the florist flowers as they were produced. One such garden is within my recollection, where along with many good hardy flowers were added collections of Phloxes, Pentstemons, Hollyhocks and Dahlias, also Stocks, Asters, Heliotropes, clumps of Mignonette, Roses, sweet-scented Geraniums, and Fuchsias, backed by lines of Sweet Peas. The great majority of hardy perennials must sink to their own level in the course of time, only the cream being allowed in gardens, while the important forms of the florist will be more and more appreciated and cultivated.

OENOTHERA LAMARCKIANA.

I SEND you a box of flowers from a noble plant that grows in my pleasure ground. The growth is somewhat spreading yet upright, and, during the evening especially, it brightens the grounds more than any other plant I possess. On inquiring of a gardener for the name of the plant his reply was, "Oh, it's a common thing, and grows anyhow in cottage gardens; it's the old Evening Primrose!" Respectfully doubting his authority I send flowers for your inspection. As to its growing "anyhow," I esteem that a virtue for the purpose for which my plants are grown—*i.e.*, rendering the shrubbery borders cheerful in the cool of the day. My plants were raised from seed that was sown in the open ground with Sweet-Williams, the seedlings being in due time transplanted and finally removed to their present position. Some of the flowers are 4 inches in diameter.—E. MARSDEN.

[It is not often we receive such a box of flowers—a whole armful, but not one of them expanded. So far as we can judge the above is the name of this *Oenothera*. Its large yellow flowers are very conspicuous in the "cool of the day." The "old" Evening Primrose is *O. biennis*. As we happen to possess an engraving in miniature of *O. Lamarckiana* we publish it, as it well shows the

character of the plant, and will aid our correspondent in identifying his favourite.]

REVIEW OF BOOK.

Success with Small Fruits. By EDWARD P. ROE. London: Seeley, Jackson, & Halliday, 54, Fleet Street.

THIS beautiful American volume, which is dedicated to Mr. Charles Downing, has been on our table for some time. It is American in all its aspects—style, tone, paper, and illustrations, the latter being numerous and many of them of great artistic merit. The author is a free and florid writer; indeed we shall not be surprised to find that matter-of-fact individuals who seek for instruction wholly, and cannot endure a grain of chaff among the wheat, will deem him garrulous. The diversified style is, however, designedly adopted. "Since," says the author in the preface, "the fruit garden and farm do not develop in a straightforward matter-of-fact way, why should I write about them after the formal and terse fashion of a manual or scientific treatise? The most productive varieties of fruit, blossom and have some foliage which may not be very beautiful any more than the departures from practical prose in this book are interesting; but, as a leafless plant or bush laden with fruit would appear gaunt and naked, so to the writer a book about them without any attempt at foliage and flowers would seem unnatural. The modern chronicler has transformed history into a fascinating story. Even science is now taught through the charms of fiction. Shall this department of knowledge, so generally useful, be left only to technical prose? Why should we not have a class of books as practical as the gardens, fields, and crops concerning which they are written, and at the same time having much of the light, shade, colour, and life of the out-of-door world? I merely claim that I have made an attempt in the right direction, but, like an unskilful artist, may have so confused my lights, shades, and mixed my colours so badly, that my pictures resemble a Strawberry bed in which the weeds have the better of the fruit."

We cannot refrain from saying that there are some literary weeds in the work, yet it contains much matter that is both interesting and instructive. All the small fruits that are so extensively cultivated in America are referred to more or less copiously, special attention apparently being given to Strawberries. The chapter on a southern Strawberry farm includes Negro life and dialogue and a dozen engravings, the whole process of strawberrying during the season being fully delineated. Black overseers are on one farm that is particularly noticed preferred to the whites, as they "drive on the work with tireless energy."

As this is Strawberry time an extract from the volume will be instructive to some readers and will show the character of the work. It is in reference to the origin of the present race of Strawberries. Marvellous is the advance that has been made, and the truth of the adage is apparent in the improvement of this fruit, that "great results from little causes spring."

The innumerable varieties of Strawberries that are now in existence appear, either in their character or origin, to belong to five great and quite distinct species. The first, and for a long time the only one of which we have any record, is the *Fragaria vesca*, or the Alpine Strawberry. It is one of the most widely spread fruits of the world, for it grows, and for centuries has grown, wild throughout Northern and Central Europe and Asia, following the mountains far to the south; and on this continent, from time immemorial, the Indian children have gathered it from the Northern Atlantic to the Pacific. In England this species exhibits some variation from the Alpine type, and was called by our ancestors the Wood Strawberry. The chief difference between the two is in the form of the fruit, the Wood varieties being round and the Alpine conical. They are also subdivided into white and red, annual and monthly varieties, and those that produce no runners, which are known to-day as Bush Alpines.

In connection with the white and red Wood and Alpine Strawberries we find in 1623 the name of the Hautbois or Haarbeer Strawberry, the *Fragaria elatior* of the botanists. This second species, a native of Germany, resembles the Alpine in some respects, but is a larger and stockier plant. Like the *Fragaria vesca*, its fruitstalks are erect and longer than the leaves, but the latter are larger than the foliage of the Alpine, and are covered with short hairs both on the upper and under surface, which give them a rough appearance. As far as I can learn this species still further resembled the Alpines in possessing little capability of improvement and variation. Even at this late day the various named kinds are said to differ from each other but slightly. There is a very marked contrast, however, between the fruit of the Hautbois and Alpine species, for the former has a peculiar musky flavour which has never found much favour in this country. It is, therefore, a comparatively rare fruit in our gardens, nor do we find much said of it in the past.

There is scarcely any record of progress until after the introduction of the two great American species. It is true that in 1660 a fruit-

grower at Montreuil, France, is "said to have produced a new variety from the seed of the Wood Strawberry," which was called "the Cappron," and afterwards the "Fressant." It was named as a distinct variety a hundred years later, but it may be doubted whether it differed greatly from its parent. Be this as it may, it is said to be the first improved variety of which there is any record.

Early in the seventeenth century intercourse with this continent led to the introduction of the most valuable species in existence, the Virginian Strawberry (*Fragaria virginiana*), which grows wild from the Arctic regions to Florida, and westward to the Rocky Mountains. It is first named in the catalogue of Jean Robin, botanist to Louis XIII., in 1624. During the first century of its career in England it was not appreciated, but as its wonderful capacity for variation and improvement—in which it formed so marked a contrast to the Wood Strawberry—was discovered, it began to receive the attention it deserved. English gardeners learned the fact, of which we are making so much to-day, that by simply sowing its seeds new and possibly better varieties could be produced. From that time and forward the tendency has increased to originate, name, and send out innumerable seedlings, the majority of which soon pass into oblivion, while a few survive and become popular, usually in proportion to their merit.

The *Fragaria virginiana*, therefore, the common wild Strawberry that is found in all parts of North America east of the Rocky Mountains, is the parent of nine-tenths of the varieties grown in our gardens; and its improved descendants furnish nearly all of the Strawberries of our markets, while the *Fragaria vesca*, or the Alpine species of Europe, is substantially the same to-day as it was a thousand years ago.

As in the Alpine species there are two distinct strains—the Alpine of the continent and the Wood Strawberry of England—so in the wild Virginian species there are two branches of the family—the eastern and the western. The differences are so marked that some writers have asserted that there are two species; but we have the authority of Prof. Gray for saying that the Western, or *Fragaria illinoensis*, is perhaps a distinct species, and he classifies it as only a very marked variety.

There are but two more species of the Strawberry genus. Of the first of these, the *Fragaria indica*, or Indian Strawberry, there is little to say. It is a native of Northern India, and differs so much from the other species that it was formerly named as a distinct genus. It has yellow flowers, and is a showy house plant, especially for window baskets, but the fruit is dry and tasteless. It is said by Prof. Gray to have escaped cultivation and become wild in some localities of this country.

Fragaria chilensis is the best species or subdivision that we now have to consider. Like the *F. virginiana* it is a native of the American continent, and yet we have learnt to associate it almost wholly with Europe. It grows wild on the Pacific slope from Oregon to Chili, creeping higher and higher up the mountains as its habitat approaches the equator. "It is a large, robust species, with very firm thick leaflets, soft and silky on the under side." The flowers are larger than in the other species; the fruit, also, in its native condition, averages much larger, stands erect instead of hanging, ripens late, is rose-coloured, firm and sweet in flesh, and does not require as much heat to develop its saccharine constituents; but it lacks the peculiar sprightliness and aroma of the Virginian Strawberry. It has become, however, the favourite stock of the European gardeners, and seems better adapted to transatlantic climate and soil than to ours. The first mention of the *Fragaria chilensis*, or South American Strawberry, says Mr. Fuller, "is by M. Frezier, who in 1716, in his journey to the South Sea, found it at the foot of the Cordillera Mountains near Quito, and carried it home to Marseilles, France." At that time it was called the Chili Strawberry, and the Spaniards said that they brought it from Mexico.

From Mr. W. Collett Sanders, an English antiquarian, I learn that seven plants were shipped from Chili and were kept alive during the voyage by water which M. Frezier saved from his allowance, much limited owing to a shortness of supply. He gave two of the plants to M. de Jessieu, "who cultivated them with fair success in the Royal gardens." In 1727 the Chili Strawberry was introduced to England, but not being understood it did not win much favour.

Mr. Fuller further states—"We do not learn from any of the old French works that new varieties were raised from the Chili Strawberry for at least fifty years after its introduction." Duchesne, in 1766, says that "Miller considered its cultivation abandoned in England on account of its sterility. The importations from other portions of South America appear to have met with better success; and, early in the present century new varieties of the *F. chilensis*, as well as of the *virginiana*, became quite abundant in England and on the Continent."

If we may judge from the characteristics of the varieties imported to this country of late years the South American species has taken the lead decidedly abroad, and has become the parent stock from which foreign culturists, in the main, are seeking to develop the ideal Strawberry. But in all its transformations, and after all the attempts to infuse into it the sturdier life of the Virginian Strawberry, it still remembers its birthplace, and falters and often dies in the severe cold of our winters, or, what is still worse, the heat and drought of our summers. As a species it requires the high and careful culture that they are able and willing to give it in Europe. The

majority of imported varieties have failed in the United States, but a few have become justly popular in regions where they can be grown.

Thus the two great species which to-day are furnishing ninety-nine hundredths of the Strawberries of commerce and of the garden, both in this country and abroad, came from America, the *Fragaria chilensis* reaching our Eastern States by the way of Europe, and in the form of the improved and cultivated varieties that have won a name abroad. We are crossing the importations with our own native stock. President Wilder's superb seedling, which has received his name, is an example of this blending process. This berry is a child of the La Constante and Hovey's Seedling, and, therefore, in this one beautiful and most delicious variety we have united the characteristics of the two chief Strawberry species of the world, the *F. virginiana* and *F. chilensis*.

This is only a very small portion of what is written on the Strawberry in the volume under notice, and the history and culture of other small fruits are fully described. The work will form a handsome addition to any garden library, and those who are interested in the subject of small fruits and have plenty of time for reading, may pass a few pleasant hours in perusing the pages of this attractive volume.

TRACHELIUM CÆRULEUM.

As a blue-flowered plant both for the conservatory and the flower border during the summer and autumn months this easily cultivated perennial is deserving of notice. It is a very old plant, and in a neglected state is devoid of attraction, but vigorously grown specimens with heads of flowers from 8 inches to a foot across cannot be passed in silence. Small plants in 5-inch pots and large specimens in 8-inch pots are equally valuable according to the position which the plants are required to occupy. They are readily raised from seed, which is best sown about May, but may be sown now, and good flowering plants may be had next year; or they may be propagated from cuttings inserted at the present time. The plants may either be grown in pots during the summer, plunged in ashes in the open air, or planted in rich soil in May and potted in September. The plants are hardy or nearly so, but are best wintered in pots in a pit from which frost is just excluded. If wintered in a greenhouse they must have a position within a few inches of the glass, or the growths will probably be so much drawn as to render the plants comparatively worthless.

—A FOREMAN.



KITCHEN GARDEN.

THE continuance of hot dry weather has rendered it extremely difficult to maintain a succession of young vegetables, which could only be secured where a timely and liberal supply of water has been afforded. The recent rains have permitted the planting of Broccoli and other Brassicas for winter and spring use. This is a good time to plant the main crops of Broccoli, and in long-established gardens where the soil is rich digging will not be necessary. Cauliflowers for autumn and early winter, as well as for lifting before severe weather for protecting in frames, must be planted at once. Proceed with planting Celery for late use in prepared trenches. Make a first sowing of White Naples and Tripoli Onions, if large bulbs are in demand the ground must be well enriched. Early Horn Carrot may be sown on a sheltered border for drawing during the early spring months. Sow Cabbage for an early supply; Ellam's Early Dwarf, Hill's Incomparable, and Wheeler's Imperial are suitable; in warm localities from the 20th to the 24th is early enough. Sow Bath or Brown Sugarloaf and Neapolitan Lettuces for late use, Stanstead Park being also good for this sowing. Rosette Coleworts will be fit for pricking out from the seed beds preparatory to being transplanted, and when the requisite numbers are withdrawn thin the remainder to 2 or 3 inches apart. Sow Turnips for late use in an open situation, and attend to prior-sown crops in thinning, and dusting with quicklime early in the morning as a preventive of the Turnip fly. Sow Chervil on a sheltered border, and the plants produced will give a supply for the greater part of the winter. Take

up Shallots and Garlic when fit and store after well drying. Tomatoes trained to walls or stakes should be well attended to in stopping all lateral growths, and when sufficient fruits are set stop the leading shoots so as to direct all the energies of the plant to the maturation of the fruit. Examine ridge and Gherkin Cucumbers frequently, keeping the shoots moderately thinned and stopped as required.

FRUIT HOUSES.

Vines.—Late Grapes and intermediate crops about colouring should have a night temperature of 65° to 70°, and in the case of those ripening ventilate freely whenever the weather permits. Red spider is very troublesome this season, therefore apply sulphur to the hot-water pipes, and sprinkle the inside borders with guano, damping well with the syringe. The ammonia vapour is inimical to insect life and beneficial to the foliage. Where Grapes are swelling abundant supplies of water or liquid manure must be given to the borders in dry weather, mulching the surface with short manure. The temperature of houses containing late Grapes passing through the stoning process must not be allowed to fall too low at night, or scalding will be sure to follow. Admit air freely by day, and keep the temperature at 70° at night. Muscats should be in the last stages of ripening assisted with a little extra fire heat, allowing an advance by day to 90° or 95° with plenty of air, which insures their acquiring a rich vinous flavour and the fine golden colour characteristic of perfect finish. Vines in pots for early forcing are now ripening their wood, and although a drier atmosphere is desirable a good syringing on fine evenings should be given to keep the foliage free from insect pests, and the watering must be maintained at the roots. Avoid extremes, exposing the growths to all the light possible to develop the eyes. Examine ripe Grapes frequently, keep laterals closely stopped, and if very ripe shade during bright sun to preserve the colour and bloom. Young Vines planted this season should be allowed to grow freely if they are to be cut back to three or five eyes at the winter pruning. Any intended for fruiting next season should be stopped to 7 or 8 feet, and kept closely pinched to that extent; but above this length the laterals may be allowed to remain, which will aid the formation of roots.

Melons.—It is important that the late plants should be in their positions, therefore clear out exhausted plants and prepare for a fresh start as soon as possible. In the meantime keep the seedling plants near to the glass and support with small stakes, removing all laterals as soon as discernible up to the height required to reach the trellis. Secure a bottom heat of 85° to 90° for young growing plants, with a moist atmosphere, shading only for an hour or two at mid-day, or only to prevent flagging. Syringe freely, except when the flowers are setting or when the fruit is ripening, being careful not to allow one or two fruits on a plant to take the lead. Keep a strict look-out for canker, and promptly subdue it by rubbing quicklime into the affected parts. Ventilate freely when the fruit is ripening, and maintain a dry condition of the atmosphere, not only to secure flavour but as a safeguard against cracked fruits.

Cucumbers.—Fire heat will not now be necessary in this department, but the temperature must not be allowed to fall below 65° at night, and 70° to 75° should be secured in the daytime. Afford copious supplies of liquid manure about twice a week, and maintain plenty of atmospheric moisture in hot weather, syringing on fine afternoons, and closing at about 4 P.M. Earth up plants that have been in bearing some time, maintaining a firm condition about the roots, expelling worms with lime water. Remove bad leaves, exhausted growths, and deformed fruits, keeping the shoots stopped as necessary, and a good supply of young growth for successional fruiting trained in, avoiding however, overcrowding. Train, thin out the growths, and stop plants in frames, earthing up the roots, removing the lights for a few hours on showery afternoons, otherwise sprinkling the foliage at about 4 P.M., and close the lights at the same time, not allowing an advance above 90°. Fumigate moderately and frequently upon the first appearance of aphides. Now is a good time to sow a few seeds for autumn fruiting. About four weeks are necessary at this season to secure sturdy plants, therefore make the necessary arrangements by collecting and preparing fermenting materials and soil, thoroughly cleansing the house. Although no fire heat is necessary at present, a

gentle bottom heat is essential for young plants, being careful to well test the heat before planting.

PLANT HOUSES.

Greenhouse.—Preparation should be made at once to obtain a stock of Zonal Pelargoniums for winter flowering. Plants that were struck last autumn or early in spring are the best for this purpose, and should at once be placed in 6-inch pots. Employ fibrous loam with a sixth of well-decayed manure and a sprinkling of sand, potting firmly, and plunge outdoors in ashes in the sun. Pinch out all flower trusses as soon as formed, stopping the plants to keep them in form, allowing them abundance of water, and be careful not to allow them to root into the plunging material. Vesuvius is still one of the best scarlets, Charles Smith being also good, with Alonzo, David Thomson, Lizzie Brooks, Mrs. Whiteley, Burns, H. M. Pollett, Commander-in-Chief, Kleon, Polyphemus, Mrs. Chandler, and John Gibbons, which are all shades of scarlet or crimson. Titania, salmon; Aida, white, suffused rosy pink; Miss Gladstone, Remus, both white with pink centres; Marguerite Ponton, salmon, white margin; Louisa, Lady Sheffield, Sybil Holden, pink or rose shaded purples; Mrs. Leavers and Madonna, rose; White Vesuvius and White Clipper; and in doubles Wonderful, Mr. H. Cannell, Souvenir de Carpeux, General de Galliffet, Duchess of Connaught, Guillon Mangilli, and Alba Perfecta are good.

Encourage Chrysanthemums as soon as the roots have taken to the soil with liquid manure at every alternate watering. If the pots are three parts plunged it will save watering, but on no account must they be allowed to root into the plunging material, and afford the plants plenty of room.

Attend well to Salvias, potting them in good loam with a sixth of decayed manure. Plunge in ashes in a sunny sheltered position out of doors, and never allow them to want for water, or they will lose their lower leaves. Stop the growths to ensure a branched habit.

Roses in pots for winter forcing may be encouraged to make all the growth possible, keeping them plunged in ashes, and with plenty of room, mulching the surface of the soil with short manure, and afford liquid manure twice a week. They will make much better growth on a north border than in the full sun, but they must be moved to a sunny position in September to harden the growth. Keep aphides under by the application of tobacco water, subduing red spider by syringing or promptly applying an insecticide, and dust with flowers of sulphur upon the first appearance of mildew, as upon the healthiness of the plants depends their flowering well. Echeveria retusa and E. fulgens for winter flowering should be treated liberally for the next two months, affording them weak liquid manure. They will thrive much better outdoors than under glass.

Heaths of the early-flowering section that have made good growth should be placed outside to thoroughly ripen the wood, and it is necessary to observe that those with the softest growth will need a longer time outdoors than with shorter and harder growth. In removing the general collection of Heaths outdoors it is necessary in bright weather to place them at the north side of a wall for a few days, for if suddenly exposed to the sun the leaves turn brown. When in position out of doors a piece of canvas should be placed on the sunny side to prevent the pots becoming hot and destroying the roots. Pay strict attention to watering them, as they will need more than under glass. Young Heaths making free growth must receive attention in stopping and training, keeping the strongest tied out horizontally, leaving the weaker upright. The general stock of young hardwooded plants will need similar attention.

Orchids.—Cattleya Mossiae and Laelia purpurata starting into growth should be repotted, being careful not to damage the eyes. Cattleyas that are growing require plenty of moisture to enable them to make plump good pseudo-bulbs. Many early-growing plants have completed their growth for the season, and must be removed to a cooler house where an average temperature of 60° is maintained without sun heat. Dendrobiums will frequently make a second growth when kept in warm quarters, but the new growth seldom becomes properly matured, therefore place the plants when the growth is completed in a house less charged with heat and moisture, and afford a greater supply of air. They will need to be inured to the change before being returned to their former quarters at the end of

summer. Give weak liquid manure to Calanthes, and keep the foliage free from insects by frequent sponging. Thunia alba and T. Bensoniae come into flower at a time when they are very useful, and should be in every collection. They are of easy culture, and require when growing the treatment of Calanthe vestita. Syringe plants on blocks frequently, especially after hot days. Ventilate the houses about seven in the morning, and close about four o'clock. Anæctochili when growing and in good health should have plenty of water; those grown under handglasses must have the glasses tilted on one side to admit air as a safeguard against the plants damping off, and the glasses should be removed for a couple of hours every morning. Many Odontoglossums and Masdevallias now require potting, particularly those growing strongly and having filled their pots with roots. Keep the temperature in the Odontoglossum house cool, syringing and ventilating freely, the bottom ventilators being left open all night.

THE BEE-KEEPER.

ALTERATION OF SEX IN EGGS.

WHAT more unlikely and wonderful than this? What harder to believe than the statement of fact that all the eggs of queen bees are naturally and originally male, many of which are changed and become female in character in passing down the bodies of queens? In the history of bees many wonderful points strike thoughtful students. One of these is the well-established fact that all eggs in their origin are male and convertible into the opposite sex. For nearly forty years I believed that all eggs laid by queen bees were alike, and convertible by after treatment into queens, drones, or workers. By a fair and satisfactory experiment made in my own garden I found that this was a mistake; that the notion was altogether wrong; and that eggs as they fall from queens are either male or female and remain unchangeable in that respect, but that the eggs which are femalised in character before they are laid are convertible into either queens or workers by after treatment in their cells. It has been long known that eggs meant for workers are twenty-one days in hatching, and which may be placed in royal cells by the bees and hatched as queens in fourteen days. Though the mystery of this change or transformation in the cells is great it is not a change of sex, for both queens and workers are female, the one perfect or fully developed, the other imperfect; but whether the special after treatment is applied to eggs in royal cells or to those in worker cells is an unsettled question. If the special treatment be given solely to royal cells, if the inmates are royally fed, we have some reason to believe that the treatment is meant to develop and perfect young queens in every respect. If the special treatment is applied to the eggs in worker cells it will go so far to prove that it tends to dwarf the insects and interferes with their development. The whole of this interesting subject is clouded in mystery. Everywhere we have evidence of design and wise arrangement, and see cells provided for the cradling of young queens, bees and drones, and suitable, too, for acting as reservoirs for honey. In considering the subject of treatment that the three kinds of bees receive in their cells, it should not be forgotten that queens are only fourteen days in their cells, bees twenty-one, and drones twenty-four. The subject, beset as it is with difficulties, presents a wide and interesting field for future investigation, and it is to be hoped that some apiarian students will turn their attention to it.

That "all eggs in the ovaries of queen bees are naturally and originally male, and develop as males when laid without being impregnated, but are changed to female if impregnated before being laid," is a statement of Baron Berlepsch, the truth of which has been illustrated and confirmed by extensive experiments and well-established facts. Notice first that unmated queens are not unfertile, they lay male eggs. Some queens are hatched with defective wings and cannot fly, and, as queens are mated outside their hives, those that cannot fly remain virgin. Many queens perfect and able to fly remain so by reason of misfortune or inclement weather. Many of these queens lay eggs which are capable of hatching into drones only. Such queens are drone-breeders.

Now notice that queens mated in early life are capable of laying both male and female eggs. Those who have investigated this subject say that in the bodies of queens there are small sacs, by name spermatheca, which receive and retain for use the sperm, that queens have the power of using it at will, and that all eggs touched by it in passing are changed from male to female. This

will appear to many students of nature to be anomalous and extraordinary. As queens live four years and are wonderfully prolific, the contents of their spermatheca are sometimes exhausted before they cease laying, or rather before they die; the eggs laid after the spermatheca has been emptied remain male and hatch into drones. Though we have had many queens die of old age, and have known many hives of our own bereft of their queens by age, we have never known a mated queen become a drone-breeder merely in her old age. We have seen queens by reason of age totter and stagger as they walked, others dethroned and cast out of their hives in a state of dotage, and one this year lost a limb and could not walk on the combs, but fell to the board again and again. All these continued to lay female eggs till the very last. Other teachers, amongst them Dzierzon, Berlepsch, and Woodbury, have had fertilised queens that became simply drone-breeders in their old age, and the statements of these able men are trustworthy.

If other proof be wanted to establish the statement that all eggs of queens are naturally and originally male, it will be found in the fact that from parents of different races, say from Ligurian queens and common drones, we have no half-bred males. Paternal influence does not affect the direct male progeny; indeed half-bred drones are an impossibility. While young queens and working bees are decidedly cross-bred, the direct male offspring share no influence but that of the mother. Let me now call the reader's attention to a nice point or distinction between the words "half-bred" and "cross-bred," also between "direct" male progeny and "indirect." While drones have no half-bred—that is to say, direct male progeny, there is the possibility, nay, the likelihood of the second and third generations catching up and possessing some of the characteristics of the grandfather. This is the idea I wish to convey, that while drones have no sons of their own they may have daughters which may carry the characteristics to future generations of both male and female offspring. The history of drone life is stranger than fiction, and is perhaps without a parallel in natural history.

Again, it is known that some workers lay a few eggs which invariably hatch into drones, and as workers are imperfect females, incapable of fecundation, these fertile workers lend some small additional proof to support the statement that all eggs of bees are originally male in character.

This subject is fully discussed and elucidated in a small pamphlet written by Baron Berlepsch, called "The Dzierzon Theory." We heartily commend this pamphlet to the notice of our readers. At page 26 the Baron says "that queens' eggs are susceptible of development though unimpregnated, but masculinity pre-exists therein, which, marvellous indeed! is transformed into femininity by impregnation with the male sperm. I am anxious to attract the attention of my readers to this portion of the theory, for it is the most important of all the propositions I have undertaken to discuss. With its aid almost everything relating to bee culture becomes intelligible, without it hardly anything is clear. He who does not fully comprehend this point will grope in the dark in all his operations, and be constantly exposed to mistake and disappointment."—A. PETTIGREW.



**** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.**

Parcels Sent by Post (To Correspondents).—We occasionally receive portions of fragile cardboard boxes that are addressed to us, and from which the contents have escaped in transit through the post. Two of such cases have occurred this week, and we have no means of knowing who were the senders. If what has been sent by correspondents this week is not referred to in our next issue it may be concluded that the contents of the parcels have not reached our hands.

Pipes for Connecting Houses (B.).—You may employ 2-inch pipes as connections between the boiler and houses, having a few feet length of pipe near the boiler, both on the flow and return pipes of the same size as the apertures or sockets of the boiler. We never recommend any particular boiler, but we should certainly have one that exposes a large amount of surface to the direct action of the fire, which quality is possessed both by the tubular and saddle in their improved forms.

Aerides Bearing Seed (J. Smith).—It is quite possible that the seed

vessels produced on your plant are the result of cross-fertilisation by insect aid. A hybrid *Aerides* has been raised between *A. affine* and *A. Fieldingi*, and is known as *A. hybridum*; so your friend must have been incorrectly informed.

***Rubus rosaeifolius* (Syl).—**It succeeds best in a greenhouse, and you may confine the pruning at present to the removal of any weak or straggling shoots. When the growth is completed the plant may be placed in a sunny and open position outside for a time to mature the wood, subsequently removing it to the greenhouse before the approach of cold or wet weather.

Heating Greenhouses (J. L.).—We have no experience of the stove alluded to, but rightly managed we have no doubt it answers the purposes the maker claims. Heating with oil or gas is, however, more costly than heating with coke or coal, and stoves are from the greater heat of their radiating surface not so favourable to plant life as that obtained by heating with hot water. We should have a stove boiler, and have two rows of 3-inch pipes along the front of your house. (G. H. H.).—Your house could be heated by gas or with oil, but both are more costly than heating in the ordinary way with hot-water pipes and a boiler. See answer to "J. L." The best manure for plants it is difficult to name, all being good. You may safely try those that are advertised in our columns, and you will soon perceive which is the best adapted for your soil and plants.

Grapes Scalded (W. A. B.).—Your vinery has been kept closed too long in the morning, and then the ventilators have been opened too widely at once to reduce the heat, hence the injury to the Grapes, after possibly a cold night. Leave the top ventilators open an inch or two all night, and increase the air very early in the morning—immediately the sun increases the temperature of the house. Ventilation should always be given on the principle of checking the rapid advance of the heat, not allowing it to increase considerably, and then endeavour to reduce it by throwing the windows wide open as if airing a bedroom.

Stopping Cucumbers (A. Boyle).—The main branches may extend until they nearly reach across the frame or trellis, and then have their points removed. Laterals or side growths will then be produced, and these may either be stopped at one joint beyond the fruit or at the joint where the fruit is produced, according as there is space in the house or frame for the development of the foliage. We have had equally satisfactory crops by adopting both modes of stopping. The growths of ridge Cucumbers only need stopping when the plants are growing very strongly, or when the main branches have extended about 3 feet.

Stable Manure Dry (B.).—If water is poured on the heap occasionally and sufficiently, and the material is moved with a fork two or three times a week, fermentation will take place, and the manure will be brought into a fit condition for use.

Red Tripoli Onion (W. P.).—The bulb you have sent is of this variety, which is very useful for autumn sowing.

Grapes Cracking (Anxious).—The variety to which you allude is probably either the Tokay or Trövere Frontignan. Cracking is caused by an undue pressure of sap on an inelastic skin. Three modes have been found more or less effectual in mitigating the evil complained of—1, Cropping fully, not lightly; 2, diminishing the supply of water to the roots, but not unduly restricting atmospheric moisture; 3, cutting notches half through the laterals that bear the bunches, so as to check the flow of sap to the berries. You can adopt either of the remedies that can be applied the best in your particular case. If after doing so the cracking still continues you may remove a leaf or two from beyond the bunches, even at the risk of somewhat diminishing the size of the fruit.

Grapes Shanking (L. M.).—The parcel you have sent has not yet come to hand. It does not necessarily follow that the present crop of Grapes must be heavy to cause shanking, as, if the Vines have been overcropped in previous years or otherwise debilitated, the evil will show itself. If the Vines were not overcropped, and the border was neither too wet nor too dry, it is deficient in the elements necessary for perfecting the crop. Place the roots in fresh loam in which is incorporated a fourth part of wood ashes and a fifteenth part of crushed bones, surface-dressing the border with rich manure. If the roots take possession of this freely and the Vines are not unduly overcropped nor forced, are watered sufficiently yet judiciously, and the foliage is kept thin and clean, the Grapes will not shank, at least to any serious extent. The worst case of shanking that ever came under our notice was cured by adopting the practice we have indicated and invigorating the Vines. There may be other circumstances that contribute to shanking, but in nine cases out of ten it arises from debility of the Vines; this we have proved by direct experiment.

Stopping Currants (G. Mason).—You may stop or remove what is termed the watery wood. All shoots growing into the interior of the bush, to the exclusion of light and air, may be cut back when about 9 inches in length, far enough to render the centre of the bush completely open. In about another fortnight the watery or wild-looking breast-spray all round the exterior may be pruned back to within 4 inches of their base. This leaves a regular tuft of foliage all round, absolutely necessary for a partial shade to the swelling fruit. Some intervening spray between each two branches must be served likewise; and if growing freely the leading points of the shoots may be stopped also.

Planting Broccoli (A Young Gardener).—There are many other young gardeners beside yourself who regret they have not given more attention to the cropping of the kitchen garden. It is not too late to plant Broccoli now—indeed, we have a great number that are not ready for planting, and on them we shall rely for the bulk of our produce next spring. We do not admire plants that are large at this time of the year, but prefer small, dwarf, sturdy plants, and we endeavour to keep them so by permitting no overcrowding in the seed beds and no weeds to shelter the stems afterwards and make them tall and tender. You may sow the Waleheren Cauliflower now if you can dig up the plants in November, or before severe frosts occur, and place them in pits from which frost can be excluded. We have frequently had a valuable supply of small heads throughout January from plants that have been so treated.

Cactuses not Flowering (T. Lloyd).—Place the plants near a south wall or fence, either plunging the pots in which the plants are growing in larger pots or in ashes. If the soil is poor and crowded with roots, and the leaves of the plants thin and of a flaccid nature, remove an inch or two of the old soil from the pots and add fresh compost, half turfy loam and half decayed manure. See that the drainage of the pots is effective, and then water them copiously, especially during hot weather. Many plants of this nature are starved by the want of support during the summer months. They should be treated liberally in the summer, gradually rested in the autumn, and kept dry in winter; they may then be expected to flower in the spring.

Ellam's Early Cabbage (Judson).—It is an excellent early variety, of compact growth, and hearts quickly. As the quality, we have found that nearly all Cabbages are good when generously grown: this we know is good, as we have grown it during the present season. About the last week of the present month is a suitable time for sowing Cabbage seed. It is important that it be sown very thinly in an open situation. It is a good practice to sow in drills 6 inches or more apart, saturating them, if the soil is dry, before the seed is sprinkled in them, and covering the ground with mats for three or four days afterwards, removing them at night. The covering must cease the moment the first seedling appears, or the whole will be ruined. This shade is only necessary during very hot and dry weather.

Pelargoniums at Kensington (J. P.).—We do not undertake to state the names of all the varieties shown at exhibitions, but we are enabled to give you the names of thirty of those in Mr. Charles Turner's winning collection of thirty-six show varieties: the others were unnamed seedlings:—Alicia, Constitution, Duke of Connaught, Emperor William, Faust, Hector, Heroine, Mountain of Light, Maid of Perth, Minotaur, Ritualist, Sir Walter Scott, Trojan, The Baron, Amethyst, Bertie, Claribel, Countess, Dauntless, Douglas, Fireball, Fortitude, Illuminator, Invincible, Joe, Magician, Marmion, Modesty, Valiant, and Virgii Queen.

Names of Plants (M. G.).—As you remark that your tree produces flowers we will endeavour to supply you with the name of it if you will send us a flowering spray. We cannot identify the tree from the small flowerless specimen you have sent. (*F. L. P.*)—The Salsafy, *Tragopogon porrifolius*. (*J. McP.*)—*Agrostemma Githago*.

Modern Bee-keeping (C. N. A.).—As you state that you "prefer the silence which is golden," and as you do not state the names of any individuals who feel themselves aggrieved, we fail to see that the publication of your letter would serve any useful purpose. We perceive that you do not question the accuracy of the statements in the article to which you refer.

Moths in Hive (H. D.).—It is difficult to eject them if they obtain a footing in a hive, where they will deposit their eggs, and they now and then increase so as to cause its entire destruction. When these vermin have established themselves we know of no remedy but driving the bees into another hive.

The Destruction of Queens—Water for Bees (H. M.).—Under the circumstances you suppose young queens get hatched only very exceptionally. The rule is this: Weather permitting, the swarm issues at the time of the sealing of the most forward queen cells; but if weather does not then allow the colony to depart, the queen cells are still continued and sealed in due course. This condition of expectancy may last some days, but if no opportunity arrives for the bees to fulfil their intention they abandon it and tear open the royal cells and destroy their occupants. Generally, no doubt, the movements of an unhatched queen within her cell showing that her exit is imminent, stimulate the bees to decision, and the work of destruction begins. When a super is accepted the queen cells within could not be more advanced than the stage of sealing, and then it would be grubs or nymphs, not queens, that would be killed and ejected. Water should always be placed near bees, so managed that they cannot commit suicide by drowning. Water is always useful, but it is essential when honey is not being collected. Freshly gathered honey is both food and drink, but the thick evaporated honey of sealed honeycomb needs to be mixed with water before it can be used in grub-raising.

Transferring Bees from an Old Skep (Bertie).—The bees need not necessarily be removed because the top of the skep has sunk, for even if the combs have so dropped that their bottom edges have met the floorboard, then the bees will channel passage way in sufficiency for themselves. As the skep is old and tender it may be wise to drive a swarm from it into a new hive, placing this swarm upon the stand of the old skep and removing the latter a couple of yards or so. Three weeks after the whole of the brood will have hatched, so that a second driving will leave only combs and honey. The new-driven swarm will now be added with proper precautions to the bees in the new hive. Two or three days before driving the second time it would be an advantage to bring the hives close side by side. The old hive will now yield its honey without any loss. The swarm of course should be fed, or at this late season it would hardly be able to prepare for winter. Feeding swarms is always good economy.

COVENT GARDEN MARKET.—JULY 13.

We have now seen the bulk of the Strawberry crop and are busy with bush fruit and Cherries, supplies being good and fair remunerative prices made. Grape trade heavy.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	0 0 to 0 0	Lemons.....	½ case	12 0 to 13 0
Apricots.....	box	1 6 3 0	Melons.....	each	2 6 4 0
Cherries.....	½ lb.	0 3 0 9	Nectarines.....	dozen	4 0 10 0
Chestnuts.....	bushel	0 0 0 0	Oranges.....	½ 100	4 0 8 0
Currants, Black..	½ sieve	6 0 6 6	Peaches.....	dozen	4 0 12 0
" Red.....	½ sieve	3 6 4 0	Pears, kitchen..	dozen	0 0 0 0
Figs.....	dozen	4 0 6 0	Pears, dessert..	dozen	0 0 0 0
Filberts.....	½ lb.	0 0 0 0	Pine Apples....	½ lb.	3 0 4 0
Cobs.....	½ lb.	0 0 0 0	Strawberries...	per lb.	0 4 1 0
Gooseberries....	½ sieve	2 6 3 6	Walnuts.....	bushel	0 0 0 0
Grapes.....	½ lb.	1 6 4 0	ditto.....	½ 100	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	½ 100	1 0 1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	Pickling.....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley..... doz.	bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 9 1 0
Carrots.....	hunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0
Cauliflowers.....	½ 100	1 6 2 0	Kidney.....	bushel	4 0 4 6
Celery.....	dozen	0 0 3 6	Radishes..... doz.	bunches	1 6 2 0
Coleworts..... doz.	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Cucumbers.....	each	0 4 0 8	Salsafy.....	bundle	1 0 0 0
Endive.....	dozen	1 0 2 0	Scorzonera.....	bundle	1 6 9 0
Fennel.....	bunch	0 3 0 0	Scakale.....	basket	0 0 0 0
Garlic.....	½ lb.	0 6 0 0	Shallots.....	½ lb.	0 3 0 0
Herbs.....	bunch	0 2 0 0	Spinach.....	bushel	3 0 0 0
Leeks.....	bunch	0 3 0 4	Turnips.....	bunch	0 4 0 0
			Vegetable Marrows	each	0 3 0 4



POULTRY AND PIGEON CHRONICLE.

THE DISEASES OF SHEEP AND LAMBS.

(Continued from page 21.)

THE epizootic foot rot or murrain with our mode of treatment of the sheep whilst suffering under the disorder having been described, we must now allude to the disease known to veterinary practitioners as "vesicular epizootic" or the "foot-and-mouth disease." It has been described as follows:—"This affection is highly contagious. When once produced it will spread rapidly through a whole flock, and may be communicated to other cattle, like the ox, pig, &c. It is ushered in by fever. The sheep becomes extremely lame, it walks upon its heels, there is much tenderness upon the coronet, in two or three days the hoof round the entire foot begins to separate, and blisters have formed round at the union of the hair and hoof and between the toes. The duration of this disease, if proper remedies are applied, is from seven to fourteen days. Treatment: Freely purge the sheep with salts and sulphur, keep them quiet, their feet clean, and recovery will take place within a fortnight. Should any part of the hoof be separated it may be removed, and the foot dressed with the vitriolic lotion, as recommended in the epizootic foot rot." This description bears much resemblance to that which we gave last week as the symptoms of the epizootic foot rot. It will, however, make some difference to the home farmer as to which complaint his sheep suffer from, for although they both yield to the same treatment, yet the foot-and-mouth disease is temporary, whilst the sheep are always liable to attacks of foot rot in very wet seasons.

We have now, however, the gratification of announcing a new and speedy remedy for the foot-and-mouth disease, which if carefully carried out will reduce the injury inflicted upon the animals to a minimum. We allude to the use of salicylic acid, as described by Sir E. C. Kerrison, Bart., in a short essay, just published in the "Journal of the Royal Agricultural Society of England," under the heading of "Remedy for Foot-and-mouth Disease." He says, "For all the ailments connected with this disease veterinary science has up to now discovered no speedy cure. Reading in the *Times* a short time ago that by the use of salicylic acid in Sillesia and other parts of the continent this disease was speedily arrested, I purchased a quantity in case of accident. Salicylic acid has been for some time in use in our hospitals as a quick and speedy remedy for rheumatic fever. I had my reasons therefore for believing that this acid must be a valuable medicine in cases of feverish symptoms. On the 10th of January four of my bullocks were pronounced to have foot-and-mouth disease. One had a very swollen tongue, and was very ill. I ordered at once the following remedy to be used. Receipt:—Pour some hot water on about three tablespoonfuls of salicylic acid in an earthen vessel, adding lukewarm water to make up a gallon. The mouth and feet of the diseased animals should be carefully washed three times a day with this liquid, and the tops of the hoofs well powdered after each ablution. Also dissolve two tablespoonfuls of the acid in hot water, and add it to the drinking water of the animals. The sheds must also be kept quite clean, and all dung must be saturated with the acid to prevent further infection." The essay goes on to state the result of the use of the receipt above described upon the cattle on Sir E. C. Kerrison's farm at Oakley Park, Seole, Norfolk. "The fourth day after treatment these bullocks began to eat, and by the 15th of January the whole

number were chewing their cud as usual. Since that time a month has elapsed, and although they have been supplied with their usual food they have increased in value from 6s. to 7s. a head. On the 15th the wind changed to the east, and carried infection to twenty-three calves 50 yards distant in a covered yard. Now, said the local veterinary surgeon, these calves will die like flies. I certainly had my misgivings about two puny calves, which I always thought would die a natural death without disease; but the whole twenty-three have recovered, the disease in every case lasting only four days. Again, when the wind turned to the south twelve cows became affected, ten being in milk. All these have recovered, five days being the longest period any of them were ill. They have hardly wasted at all in their milk, and I expect that on the eighth or tenth day from their infection they will be pronounced sufficiently sound for their milk to be used. It is further stated that a sow was then seized with the complaint. The veterinary inspector advised me at once killing the young pigs, as they would surely die; indeed, such has been the case in my neighbourhood under the old treatment. It is rather a difficult operation to smear the pig's snout; she was therefore only given water impregnated with the acid. In two days she was perfectly cured, and her five pigs are quite well, and will no doubt live to accomplish the aim and object of a pig's life—to get fat in the shortest possible time. Up to this date forty-three head of stock have had it for an average time of about four and a half days each. In order to spread this far and wide, having been once President of the Royal Agricultural Society, I have taken advantage of the kindness of the Editor of its 'Journal' to give through its medium the earliest intelligence of this German discovery."

Our readers will no doubt feel interested in the extract we have made from this essay, for the subject is treated in a full and practical manner both as to the remedy, its administration and results, that it cannot fail to be of the highest consequence to the home farmer in his everyday management of cattle. Everyone should, as occasion requires, test this valuable remedy upon all kinds of stock. It must be considered that this remedy is available for all cattle, including sheep and lambs, when attacked with any disease induced by fever or inflammation under whatever form or character it may assume. No doubt ordinary foot rot will yield to this remedy, for it is essentially a febrile and inflammatory complaint, sometimes only attacking the feet, at others affecting the mouth, eyes, and udders, but every instance will probably be successfully met by the use of this acid. Whatever advantage this remedy will prove to other stock on the farm, sheep and lambs will in fact receive greater benefit under treatment than all the others, because they are nearly always in the open air, whilst all the other animals in ordinary management are often accommodated in winter with shelter. The home farmer should therefore consider the effect of our sheep and lambs being continually exposed to heavy rains, snow, frost, and high winds. It is no wonder that our sheep suffer more from inflammatory disorders accompanied with more or less fever than other stock, and strictly speaking we have a long list of complaints too numerous to mention here. Scarcely any losses which we sustain in sheep-management, except those arising from accidental causes, may be traced to inflammation as their origin, whether the complaint assumes the form of rheumatism, joint diseases, quarter-ill or black quarter, diarrhoea, or affections of the lungs, kidneys, and the udders of ewes. It is very clear that we have a right to expect a speedy cure of nearly all these complaints as soon as apparent, and very probably the prevention of most of them by the treatment we have been describing, if by intelligent observation the premonitory symptoms are discovered in good time.

One of the most serious disorders which the flockmaster has to encounter is abortion amongst his breeding ewes, and when it happens it frequently extends to large numbers, for we have in our flocks occasionally lost from twenty to fifty lambs by premature birth, or by lambs born dead. Practically this is often attributed to the improper feeding of the ewes, and no doubt it is so in some cases. We have noticed, and more especially since the foot rot has been so prevalent, that it may more strictly be induced by internal fever accompanying foot rot, and also by inflammation, the consequence of long and excessive rains to which breeding ewes are exposed in the open field feeding. This disorder once commenced, it is difficult to say how far it may extend. One of the best ways to prevent its spreading amongst the ewes, is to remove every animal as soon as it exhibits any signs of the complaint and place them under treatment, and treat the remainder of the flock with the drink of salicylic acid diluted. In the event of animals suffering severely after abortion, they should not only be allowed the prescribed drink several times a day, but when the placenta does not pass away in a natural manner and

at the proper time, it often affects the parts in a way which eventually leads to mortification and death. Our new remedy, however, it is stated meets these cases in a really practical manner, and by injections into the affected parts it completely prevents them from assuming any serious aspect.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are still employed on the land preparing for the seeding with common Turnips, and occasionally ploughing or scarifying the fallows intended for Wheat: in fact, it is now none too soon for laying out the dung, if either town or yard manure is used, which should be spread and ploughed in immediately with a cross ploughing. If the land is clean and free from Couch it may then be allowed to lie undisturbed until about the last week in September or first week in October, and then be ridged up into such sized ridges as the nature of the soil requires. Working on the fallows must not interfere with other horse labour of more immediate necessity, such as carting hay to the stack and cutting grass with the mowing machine. In some of the late districts there is much pasture and meadow grass only just becoming fit for cutting, and the recent hot weather on all cold meadow lands has improved the bottom grass to a considerable extent. Horses are at present engaged in ploughing the land rather shallow where Swede seed was drilled in the middle of last month, but afterwards destroyed by the flea or beetle. It is practically useless to attempt to save the plants when the weather is hot and dry, because when the fleas are very numerous the young plants are soon destroyed. It is therefore hopeless under such circumstances to talk of saving the plants. We have never seen it done upon anything but a small patch in garden work, and even then with the greatest difficulty and by both early and late attention—such as we consider quite out of the range of farming operations in general. We must, however, refer to the time of the attack, for if the plants grow and show four leaves before the flea attacks them they may probably be saved by strewing lime on the land in the early morning while the dew is on the leaf. At the same time the home farmer need not begrudge the lime, for it is a capital manure upon nearly all soils if it should fail in saving the Turnip plants. Horse-hoeing of the Mangold, Swedes, and early Turnips must be continued. As we have lost a field of Swede plants by the flea we shall, as fast as the ridges are ploughed, sow immediately 3 lbs. of seed of the Red Mammoth Turnip per acre. This will seed the land very thickly broadcast; but this answers a good purpose, because our plan is to run the horse-hoe through them set at the width of 18 inches. In this way we have generally secured a regular plant, and, not being so thick after horse-hoings, it very much facilitates the hand-hoeing as compared with the drilled plants.

Hand Labour.—Men are now required in haymaking, stacking, &c., in Turnip and Mangold hoeing, also mowing by scythe in the water meadows. Women will of course assist in haymaking in the meadows, and also in singling the root crops after horse and hand-hoeing.

Live Stock.—We last week referred to the choice of rams to run with the breeding ewes in the stock flocks for maintaining the breed, or crossing in any direction for the purpose of improving or altering the character of the flock. We must now, however, refer to the selection of rams for the off-going ewes—that is to say, the ewes to be sold to graziers for lambing in the winter or spring, and the lambs for sale as fat stock at Easter and following periods. In this case, if we have Hampshire or west country down ewes in our flock, the best plan is to use either a Cotswold or Oxford down ram; for although the lambs will not prove so good and short-woolled, yet there will be a far greater percentage of twin lambs. We do not reckon above 90 per cent. of lambs from the Hampshires of the pure breed, yet we get 110 per cent. when the lambs are cross-bred with the Oxfords and Cotswolds. If we refer to the Leicesters or any long-woolled breed, and require their produce to be sold as fat lambs, we highly approve the use of the Somerset horned ram, for that will not reduce the number of twins but improve the quality, and at the same time shorten the wool—a matter of great importance. We always expect the largest number of twins in comparison with any other breed or cross, not less than from 120 to 130 per cent. The sheep on the hill farms will, after finishing the Vetches, feed off the second growth of Clover and Saint-foin, going to a folding of Rape at night time; and if it is required to feed any of the lambs or ewes, they should have about half a pound of cake or cracked beans per head in their troughs on the Rape folding. As the Rape, however, is very forcing food, care will be required to prevent the stock from becoming hoven or blown. Our plan is to let them feed for about twenty minutes, and then turn them back for about half an hour, and it will be found on their returning to the fold after that time the Rape or any succulent food will never injure them. The bullocks fattening in the pastures may require some cake also if the weather continues very dry, and water supplied if they have no pond or brook to go to. All the weaning calves will now be doing well if they get plenty of grass, if not Clover may be cut up and given them, otherwise an allowance of cotton cake will be necessary.

HARVEST PROSPECTS IN EUROPE.

THE Austrian Government has received from the Austro-Hungarian Consuls in the various countries of Europe a series

of special reports on the present state of the crops, and the prospects of the coming harvest throughout the Continent. The results have been published by the Vienna Minister of Agriculture, and may be summarised as follows:—

Throughout Southern Europe cereal crops are, with few exceptions, in a very satisfactory condition. In a majority of districts there will probably be considerably more than an average harvest. It is only in Portugal that the yield promises to be below the average. In Spain and most parts of Italy the promise is satisfactory; in Lombardy, Greece, and most parts of the Balkan countries, highly satisfactory. In the lower parts of Bulgaria, Servia, and Roumania, however, the spring floods have done great damage. The excessive rains and floods in Moldavia have so injured the crops that only half the average yield is expected.

In Central Europe generally there is promise of a satisfactory average harvest. In Switzerland the result is expected to be considerably in excess of the average. In Germany the only provinces where the yield will fall sensibly short of a fair harvest are East and West Prussia, the falling-off being attributed to a wet autumn, a severe winter, and a cold damp spring. From Russian Poland, too, owing to the same causes, the harvest will probably be considerably below the average. In Saxony, Thuringia, and some other parts of Germany, the so-called English variety of Wheat (*Triticum turgidum*) has done badly, but the native variety (*Triticum vulgare*) has thriven well.

In Western Europe, including France, Belgium, and the Netherlands, the cereal crops are generally in a very satisfactory state. It is only in some parts of Southern France that the yield promises to be below the average. In Holland, on the other hand, the prospect is highly satisfactory, considerably more than the ordinary yield being anticipated.

As regards Eastern Europe, the harvest in Russia will be very unequal in different parts, but the general result will be an average harvest. In several Governments the severe winter has killed the seed, and the spring-sown crops have progressed but slowly; but from most districts the reports are satisfactory.

Taking Europe as a whole, the harvest of the present year promises to yield more than the average. The result will, however, be in part due to the fact that the area sown with cereals is larger than the average for some years past.

VARIETIES.

THE ROYAL AGRICULTURAL SHOW AT DERBY.—Although there is a slight falling-off in the entries in the classes of live stock of the Show now being held in Osmaston Park, still the Exhibition is one of great magnitude, and worthy of the Society under whose auspices it is held. Of implements there is a remarkable display, consisting of 377 stands and nearly six thousand articles. The museums of the great seed farms, we are informed, attract much attention, as may be expected when, amongst others, such firms as Messrs. Sutton, Carter, and Webb put forth their strength, as we learn they are doing at Derby. Their splendid collections of seeds, roots, grasses, &c., strikingly represent the great importance of this section of British agriculture, and the skill and enterprise with which the seed industry is conducted in this country.

— THE CROPS IN THE MIDLANDS.—Judging from the passing glance that is obtainable from a Midland express from London northwards, a journey that will be traversed by thousands this week, the corn crops generally are looking decidedly better than they were at the corresponding period last year. True there are far too many Charlocks and Poppies in places, and many fields of Wheat and spring corn that are far from satisfactory, yet, notwithstanding, there is a decided improvement in the aspect of the country. The hay crops, if crops they can be called, are strikingly deficient; but Beans and Peas are looking well; Potatoes excellent; and Turnips and Mangolds appear to have got a fair start, and, weather and weeds permitting, good crops may be expected. The fruit crops are far superior to those of the past few years, and altogether signs are not wanting that we are nearing brighter and better times, so far at least as regards the productiveness of the soil.

— LEGHORN EGGS.—*The American Poultry Yard*, in recommending Leghorns for laying qualities, says—"It is a mistake to suppose, as many do, that the egg of a Leghorn is necessarily a small egg. Of course it will not equal in bulk the egg produced by a fowl three or four times as large, but in proportion to the bulk of

its body the Leghorn, under proper treatment, will yield eggs that are thoroughly respectable in size; and the only wonder is that when the comparatively small bodies of the fowls are taken into account they can by any process of nature produce the weight of eggs yielded up every season during their period of usefulness." We must confess that our experience has led us to arrive at the conclusion that Leghorn eggs are decidedly small. We shall be glad to hear from such of our readers as keep Leghorns what their experience has been.

— AGRICULTURAL PROSPECTS.—Our reports this week are not on the whole in favour of a remunerative harvest. The Wheats vary in different localities, but as a rule they appear to be a rather thin crop. With the exception of early-sown Barleys on kind land, the spring corn is also stated to be thin, and even the best crops are short in the straw. The great deficiency of the hay crop is no longer a matter of uncertainty. The thunder rains have benefited the root crops and helped the growth of aftermath Clovers and grasses. Stock of all kinds are doing well, but prices continue to be disappointing. Altogether the outlook is not very cheering.—(*Mark Lane Express*.)

— REMEDY FOR FLUKE DISEASE IN SHEEP.—Mr. J. R. Millington, writing to the *Irish Farmer's Gazette* upon the fluke disease, observes—"The eminent London cattle auctioneer, Mr. Thornton, gave a friend of mine the following recipe as a remedy for fluke disease in sheep; and as I am sure he would not give it unless he believed it likely to be efficacious, I submit it to your readers. The remedy is so simple, and the matter is of such pressing importance, that a trial ought to be made and the results published. The remedy is 1 oz. of podophyllin root in half a gallon of water, boiled well or simmered before the fire. The dose two tablespoonfuls on two successive mornings, to be given cold, and the doses repeated at the end of a week. This medicine will not injure sheep in lamb or that have lambed. Podophyllin is a medicine of comparatively recent introduction, and is the root of the May Apple or wild Lemon, and is a common herb throughout the American States. It has superseded to a great extent the various preparations of calomel, &c.; indeed, it is known by some as the vegetable mercury, and as a cathartic it has been found invaluable. If it be as effective a remedy for the fluke in sheep as it is in some diseases of the human subject, its use will be a boon to farmers."

POULTRY AND PIGEONS

POULTRY NOTES.

It is now full time that the old birds, which are likely to be wanted for exhibition at the leading shows, should be getting rid of their old plumage. If they are not beginning to moult of their own accord some artificial means of starting a moult may be tried. Shutting the birds up in very warm houses or pens and giving them a little hempseed mixed with their other grain food is the best plan for the cocks and non-sitting hens. Hens of the sitting sorts should be allowed to lie a few weeks if possible before being treated as above suggested.

It should be remembered that as a general rule hens will not moult so long as they are laying, and also that a very full state of the system is bad for the commencement of a moult. It is best, therefore, to allow the birds before they commence moulting to get rather below their usual condition, and then as they progress in the moult to gradually increase the feeding, and thus get them into their best form just at the time when they are most wanted for exhibition. Show birds are to a certain extent like athletes, and can more easily be got into condition for one or two events than kept a long time in high condition. Let the system of feeding now adopted be such, therefore, as to rather bring down the weight of those of the birds which are unduly heavy, and stop the laying of the hens. Scanty meals of non-stimulating food will do this. Birds that are in low condition or are of weakly constitution must not be included in this regimen, or their systems may be too much reduced to stand the strain of moult.

THE white breeds, and such of the other kinds as turn yellow through exposure to the sun, must be moulted in some place where there is no strong sunlight. Many fanciers moult them in houses

on straw, but unless the birds be delicate we hardly approve of this. Nothing takes the stamina out of a healthy bird so much as long confinement in a house; and although no evil results may at once appear, the effects will probably show themselves in the ensuing breeding season in unfertile eggs and weakly chickens. If the necessary amount of shade can be secured by any other means we never pen up our birds to moult, but allow them as much liberty as possible on every fine day.

A CORRESPONDENT last week, in speaking of rats as poultry pests, recommends their extermination as a remedy. That is all very well in theory, but can only be carried out in practice in exceptional circumstances. One's neighbours are by no means always so particular in respect to exterminating these gentry as one could wish, and with a thriving colony next door dwelling undisturbed it is useless to rely for safety upon exterminating occasional visitors. We once were so badly overrun that the rats actually ate their way through the woodwork of an artificial mother and killed all our early chickens. We then determined to put no further trust in wood, and constructed a rat-proof sleeping place for our young chickens as follows. We obtained a sheet of thin iron 6 feet long by 3 feet wide. The outer edge of this, to the extent of $1\frac{1}{2}$ inch, we bent up at right angles to the rest of the sheet and nailed to a wooden framework made of $1\frac{1}{2}$ -inch square scantling. This made a sort of tray, which held just a sufficient depth of dry earth for the chicks to lie and run about on. We next constructed a sort of bottomless cage of similar scantling and three-quarter-inch-mesh galvanised wire. This cage was 2 feet in height, and being so constructed as to fit exactly upon the framework of the iron tray, measured 5 feet 9 inches in length and 2 feet 9 inches in width. A stout pair of hinges at the back and a hook and eye at the front completed the arrangement. A hook in the back wall and a thick cord attached to the front of the cage afford the means of keeping it open in the daytime. The artificial mother is placed inside this cage, and once it has been fastened up for the night the fancier can rest assured that no rats will reach his chickens.

ANOTHER method of baffling the rats is to raise the chickens' sleeping house on iron bars or stoneware pipes a couple of feet from the ground, taking care to keep it sufficiently far from the wall not to allow the rats to get a means of access and attack in that direction. In order to eat their way through woodwork rats require some convenient place from which to work, which this arrangement prevents. A sloping plank with boarded sides and wired top affords a means of access to the chickens, which they soon learn to use. This must of course be taken down at night and the entrance closed.

WHERE the houses are of stout wood, and so placed as to be accessible on all sides, we have found that rats may be entirely excluded by simply digging a narrow trench 1 foot deep all round each house, putting down three-quarter-inch galvanised wire netting 1 foot in width in the trench, nailing the top of the wire to the woodwork of the house, and filling-in the trench with fine sand or gravel. We do not say that this plan is infallible, but we have never, after several years' experience, known a rat to make his way into a house so secured.

POULTRY AND PIGEONS IN SUMMER.

IT is a common mistake to think that poultry require no attention at this time of year. The days are long, the weather may be expected to be fine, and cold rain and winds, their great enemies in winter, absent; therefore it is thought no ill can befall them. This unfortunately is an error. There are many diseases which indirectly result from heat, and somehow we have always found the summer complaints of poultry far more difficult to deal with, and far more quick in their progress, than those which attack them during the colder months. As a timely warning we will enumerate some of them and some of their causes.

To begin with. All the evils which result from overcrowding must now specially be guarded against. Water quickly becomes foul if exposed to the sun, and we see at the bottom of neglected pans a nasty green growth. They should constantly be scoured out and a few drops of Condry's fluid put in the water. The ground, too, when there is little rain to wash it, quickly becomes tainted, and even good large grass runs if constantly occupied become the same. If it is attempted to keep poultry (though we always deprecate this) in small gravel yards, their surface must be constantly turned and watered with a weak solution of

carbolic acid. Grass yards are more easily kept sweet if constantly mown; the growing grass seems to absorb impurities. In spite of such precautions we have lately lost a number of chickens simply from putting them into large grass yards which had been too long inhabited by adult birds and so tainted. Again, in hot weather the air as well as the water and earth is very easily vitiated. If poultry houses are situated where it is unsafe to leave the doors open at night it is a good plan to have temporary wire doors opening inwards placed inside the wooden doors; we have some such, and they enable us without fear of vermin to leave the houses well ventilated at night. All half-grown birds should now be taken away from coops and put in houses, and the coops of small chickens must never be entirely shut up at night. All soft food soon becomes sour; the greatest care must be taken to mix no more than is at once required. Sour food is a frequent cause of diarrhoea, which in very young chickens is at this time of year an almost incurable malady, and (such is our experience) highly infectious. We have lost several valuable chickens by it from putting them among rank grass; in such places grit is often absent, and they eat coarse and indigestible herbage, internal inflammation comes on, they fade to skeletons, and die.

Ducks will hardly bear any cooping now. Those who have large enclosed wire runs, with or without houses, will find it best to turn the ducklings and their mothers or foster-mothers loose in them, and not to coop them at all. Young Turkeys should by this time have complete liberty and no longer be cooped; it is wonderful how fast they grow when once they begin to perch.

For Pigeons very similar precautions must be taken; their lofts and houses well ventilated, their nests kept scrupulously clean, and the ground of their aviaries frequently sprinkled with disinfecting fluid. Their baths, too, should be filled with fresh water three times a day. Many people are ignorant of the fact that Pigeons like and require in summer a considerable amount of green food. It is a good plan to plant a large Lettuce or Cabbage now and then in their aviary, and to see how rapidly they devour all but the toughest part of the stalk.

We have at times spoken of canker as almost incurable among young Pigeons, and ought therefore to relate a decided cure of it, which we have lately made, and its method. A pair of Blue Fantails, bred, it should be said, from two nearly related birds, at about a month old showed every external sign of it—viz., roughness of feathers, panting, and mopishness, and became quite light; examination proved their throats to be, as we expected, full of canker. We simply scraped it out every day with a quill, and gave them each one of Hammock's pills. At first we had no real hope of effecting a cure, but the Pigeons continued to eat, and gradually became heavier in hand. After about a week we observed that the canker returned much less rapidly, and then only one speck appeared daily in the corner of the mouth of each; this we always scraped away till the surrounding skin bled, and now after three weeks' treatment they are fat, have no more pills, and only the faintest traces of canker. We believe them to be really cured.—C.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. $51^{\circ} 32' 40''$ N.; Long. $0^{\circ} 8' 0''$ W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Sol at 1 foot.	Shade Temperature.		Radiation Temperature.			
July.			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sun.	3	30.121	70.2	56.8	S.W.	64.0	82.3	67.2	132.3	52.3		
Mon.	4	30.215	72.3	65.2	S.W.	65.1	89.2	62.8	133.1	59.0		
Tues.	5	30.127	76.8	68.4	N.	67.0	92.7	62.2	137.2	57.4		
Wed.	6	29.647	64.7	62.5	S.W.	67.7	75.4	62.1	89.4	63.2		
Thurs.	7	30.080	59.8	51.7	N.W.	64.2	64.3	48.8	104.0	45.8		
Friday	8	30.006	69.9	55.4	S.W.	62.0	64.0	51.2	89.3	47.8		
Satur.	9	30.007	63.6	58.5	S.E.	61.7	72.4	47.0	120.2	45.2		
Means.		30.029	66.9	59.8		64.4	77.5	55.9	115.1	53.0		
										0.837		

REMARKS.

3rd.—Very fine, warm, breezy day.
4th.—Very warm, bright, and fine.
5th.—Very hot oppressive day; temperature higher than on any day since 1868. Lightning in south-west 10 P.M., and violent thunderstorm from midnight till 3 A.M. on the 6th.
6th.—Very close, with slight rain and thunder in early morning; heavy rain for short time 11 A.M.; fine, breezy, and cooler in afternoon and evening.
7th.—Cool overcast morning; fine bright afternoon and evening.
8th.—Cloudy and cool, thunder 1.15 P.M.; showery afternoon and evening.
9th.—Fog in early morning, dull at first; fine bright day; overcast evening.
Temperature very much above the average notwithstanding the coolness of the 7th, but the week not quite so hot as that ending June 4th.—G. J. SYMONS.



21st	TH	
22nd	F	Sutton Coldfield Rose Show.
23rd	S	Cleckheaton Cattle Show.
24th	SUN	6TH SUNDAY AFTER TRINITY. Horticultural Show at Liège.
25th	M	
26th	TU	Royal Horticultural Society, Fruit and Floral Committees at
27th	W	[11 A.M. British Bee-keepers' Exhibition (7 days).

STRIKING ROSES IN SUMMER.

A CORRESPONDENT having asked for the names of such H.P. Roses as will grow on their own roots, I have to say that I have not found any which will not succeed in that way at least as well as they will in any other. It is true I have not grown them all, nor a sixth part of such as may be said to be in general cultivation amongst large exhibitors; but as no failures have occurred amongst those which have been tried, and they represent all classes, it may be assumed that although under certain conditions some varieties will not strike root as freely as others, yet when once rooted they will all grow well, and that those which will not strike readily under one system will freely do so under another. There is probably not a Rose grown which will not freely root at this time of the year if the cuttings are treated in the way I shall attempt to describe.

Most people who have attempted to grow Roses have also at some time tried to bud a few; they will therefore understand that when a Rose shoot is in the condition of having buds fit to insert, it is also then in the best condition for making into cuttings, with a chance of every cutting striking root. To those who do not know anything about budding I may say that the growth is generally in the best condition at the time of flowering, or immediately afterwards. A shoot which has produced a flower, and still has its foliage healthy, will generally have little plump buds in its axils, and these before they start into growth are in the best condition for the purpose of propagation either by buds or cuttings. It is not really necessary that a shoot should flower to be in this condition; on the contrary, those which have not produced a flower, if the growth is sufficiently hard, will probably strike root the quickest; but as everything depends on the condition of the wood I am anxious to make this part of the subject plain. It must be moderately hard, bearing fresh healthy leaves, and must not be too vigorous. Medium or even weak growths will be found to root more freely than those which are strong and succulent. Having decided that the growth is in a suitable condition for making cuttings, the soil must be prepared to receive them—for remember, that when once they are severed from the parent plant every minute of exposure to the action of the air before insertion will probably add a day to the time it will take them to strike root; and further, that the value of the future plant altogether depends on its striking root without losing its present foliage. It will, I think, not be too much to assert that more Rose cuttings fail to strike by being dried during the process of making and insertion than by any other cause.

Keep the wood and foliage perfectly fresh and failures will be few; permit the bark to shrivel and the leaves to flag and the losses will be many.

I prefer to have my cuttings for striking in summer in such a position that the sun cannot shine directly on them, but still so that they may have the benefit of all the daylight there is. The best place, then, I consider is quite close to the north side of a rather high wall, and if there are no plants growing there so much the better. Another advantage which this position possesses is that the fluctuations of temperature are not so great as in other parts of the garden, hence the condensation of moisture, that great producer of "damping-off," is not so great. My propagating frames are very simple, consisting of bottomless boxes fixed on the ground after it is prepared for the cuttings; or if the boxes are not sufficiently deep to give a couple of inches of clear head-room above the cuttings they may be fixed on the ground first, and then the interior can be lowered to the required depth, taking care that the soil to receive the cuttings is sweet but not rich. It will be an advantage to place an inch or two of gritty soil—say a third road grit or sand to two-thirds of well-pulverised soil, such as would be found on the surface of a flower border. The size of the boxes is immaterial, so long as they do not reach out too far from the wall. Mine are generally boxes such as have been used for growing French Beans in during winter, the bottoms of which invariably decay before the upright parts, and they then serve this purpose as well as new boxes would. The size of them is 32 by 12 inches, and 9 inches deep. The greater part of our propagating is done in boxes of this length and breadth, although they are not of uniform depth, and they are covered with panes of glass about 12 by 10½ inches, three panes covering each box. Some long strips of paper about an inch wide are cut, a little paste (merely flour and water mixed without boiling), and a small paint brush are in readiness before the cuttings are taken off.

Where a long shoot can be spared it may be made into several cuttings, as it is not necessary to have a heel to them, as many people imagine. One joint below ground and one above is sufficient, but more will do no harm provided there is no soft growth left on the upper part. Use a dibber without a sharp point, so that it may leave the bottom of the hole flat for the cutting to rest on, then make the soil quite firm round it without bruising the bark. Have one box filled as quickly as possible, give a rather heavy watering, place the glass over immediately, and paste the strips of paper partly on to the box and partly on to the edges of the glass, so that no air can enter. If the panes fit closely together on the top it will not be necessary to place paper across; but if there is more than room to stick the point of a knife in, the widest spaces should have paper pasted on them as well. Do not allow the glass to be lifted for four weeks, by which time you will have plants instead of cuttings, and they then must be treated accordingly. Among the sorts which I have doing well are Etienne Dupuy, François Michelon, Mdle. Thérèse Levct, La France, Duchesse de Vallombrosa, Marie Baumann, Alfred Colomb, Jules Margottin, Victor Verdier, Achille Gounod, Madame Clemence Joigneaux, Général Jacqueminot, Centifolia Rosea, John Hopper, and Beauty of Waltham.

There is a Rose, I suppose it is a H.B. Paul Verdier, which I would specially recommend to those who have to supply cut flowers, as it comes in just as the H.P.'s are getting past their

best. It is a red incurved flower of good shape, and ought to be useful for a late exhibition stand, but I seldom see it. It does well with me on its own roots, every bloom coming good.—WM. TAYLOR.

DAY'S EARLY SUNRISE PEA.

IN reply to "CLERICUS," I may state that the above Pea was sown here on a south border on March 10th, and the first dish was gathered on July 4th. William I. and Ringleader, sown on the same date, we gathered from on June 18th. William I. has been particularly good, carrying a heavy crop of well-filled pods of splendid colour, the peas being of excellent flavour when cooked. I consider Early Sunrise has quite failed as a first early Pea, seeing that it was a fortnight later than the others, and it is inferior to some varieties in cultivation as a second crop. It has one good point—namely, its dwarf habit, and it is of good flavour, but not so good in colour as William I.—G. SUMMERS, *Sandbeck Park*.

I HAVE no doubt about this Pea taking a position as a standard early variety. Though the difference in time at which the Early Sunrise and William I. come into bearing is hardly worth mentioning, yet the former, perhaps, has the advantage, as the pods fill more quickly than is the case with the other, which takes some days before they are serviceable, though outwardly they may appear quite full. Early Sunrise is essentially a dwarf Pea, growing with us to an average height of 2½ feet; the other is a tall Pea. Early Sunrise remains longer healthy and in a bearing condition, while William I. has the advantage in having double the number of peas in each pod. Both are good-flavoured Peas. William I. is now difficult to obtain true to name. Altogether I consider Early Sunrise a Pea well worth growing, and as this year the price was only 3s. 6d. per quart, no doubt it will be reasonable in price another season.—R. P. B.

WITH seed bought of Mr. Richard Cleaver of Lichfield, who obtained it in sealed packets through Mr. Robert Cooper of London, I sowed two rows of Sunrise on St. Patrick's Day (March 17th) on land which was well manured for a last year's crop. They showed bloom on May 28th, and the first gathering was made on Tuesday, July 12th. In quality, size, and flavour the Pea is good, and the haulm is covered with fine pods from bottom to top. In consequence of the high character given to this as an early Pea by the advertisers, I did not sow Kentish Invicta, on which I have relied as a first early, until April 16th—a full month after Sunrise; and yet we gathered from the Invicta on July 9th, three clear days before Sunrise. William I., sown on May 2nd, was gathered from simultaneously with Sunrise on July 12th. These Peas are all growing on the same plot of land within a few yards of each other, and the only difference in treatment is that the Invicta and William I. were manured at the time of sowing, and Sunrise was sown on land rich from last year's tillage. It will thus be seen that to call Sunrise early is a misnomer, and that its sun rises with the sluggard—when others have done a good portion of their work. Those who advertised it as "a Pea as early and good, if not better, than Ringleader," have caused me a great disappointment by keeping me out of Peas two or three weeks. I shall not again trust to highly praised novelties.—CHARLES BARNES, *Lichfield*.

NOTES FROM THE CAMBRIDGE BOTANIC GARDEN.

DURING a recent visit to the botanic garden of our celebrated University of the Light Blues I observed several plants worth noting in the pages of the Journal, and therefore I send you the following jottings. I may remark that the general appearance of the garden is very satisfactory, as it might be expected to be under the able superintendence of Mr. R. J. Lynch.

EPIDENDRUM PRISMATOCARPUM.—This has been in flower for many weeks, and though not showy it is extremely attractive from its large spikes of yellowish flowers with dark chocolate blotches and pink labellum. It is robust in habit and easily cultivated, while from the persistency of its blossom it is worth the attention of every collector.

LONICERA GRATA.—Of this fine shrub there is an excellent specimen, and it is one of great value and beauty. It flowers most profusely and is sweetly scented. It closely resembles in its floral characters the common Honeysuckle, but requires no support. From this habit—of a close-growing much-branched shrub—it is able to take a place where the climbing Honeysuckles could not be grown. It is said to live longer than most other species, and to be inferior only in vigour to *L. japonica*. It flowers from early

summer to late in autumn. It is a native of North America from Carolina to New York.

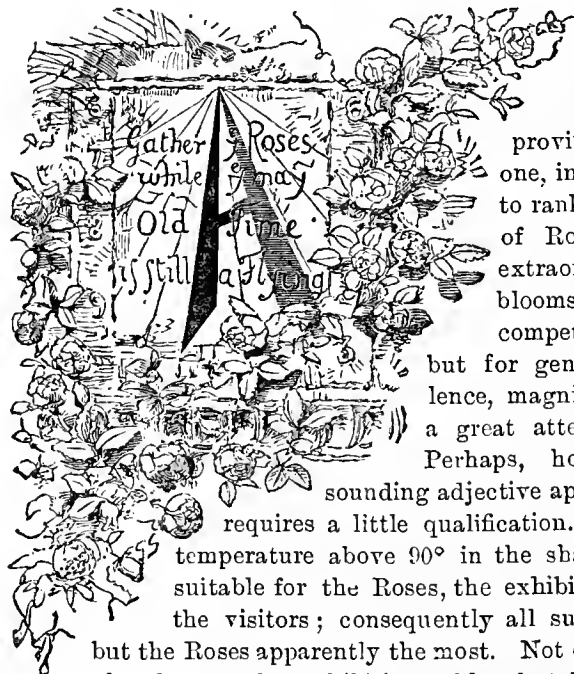
LATHYRUS GRANDIFLORUS.—Common as this is, it is, perhaps, the finest of all in size and beauty of blossom, while it is not surpassed in the length of its blooming season. It is very pretty in combination with some other plants, and recently we have admired it trailing among grass. There is scarcely anything more charming to grow beside a cottage door or to cover low palings.

GALIUM RUBRUM.—This very rare species is without doubt the choicest for garden culture. It has slender stems about 1 foot high, which now bear numbers of tiny red flowers—a colour quite exceptional in this genus. The leaves are narrow and small, and the loose inflorescence is extremely graceful and light in appearance for the purpose of relieving the colour of bright flowers in floral arrangements.

SCARLET POPPIES.—The new *Papaver umbrosum* is one of the finest, and, growing on the rockwork, is the most attractive of plants there in flower. It is nearly allied to the Corn Poppy (*P. Rhæas*), of which it is, perhaps, a variety. It is much superior in its more compact habit and finer foliage. The flowers, too, are deeper in colour with greater substance, and the intensely black blotches contribute greatly to its handsome character. It was distributed by Mr. Thompson of Ipswich, who marks it a biennial, under the treatment for which it has done well. *P. bracteatum* on the herbaceous ground has been magnificent—far finer than the comparatively pale *P. orientale*. Of that species it is properly a variety, distinguished by having bracts beneath the flowers. Some years ago in the Jardin des Plantes was to be seen an interesting variety with monopetalous flowers. Can any reader say where this is to be obtained?—VISITOR.

SHEFFIELD ROSE SHOW.

JULY 14TH.



GAIN has the National Rose Society held a successful provincial Exhibition—one, indeed, which deserves to rank high in the records of Rose shows, not for extraordinary quality of blooms or unusually keen competition in the classes, but for general average excellence, magnificent weather, and a great attendance of visitors. Perhaps, however, the high-sounding adjective applied to the weather requires a little qualification. It was hot, and a temperature above 90° in the shade is not the most suitable for the Roses, the exhibitors, the officials, or the visitors; consequently all suffered more or less, but the Roses apparently the most. Not only after they were placed upon the exhibition tables, but before they arrived, many had reached a condition that effectually damped their owners' hopes of a high position in the ranks of the competitors. Nevertheless many very bright and beautiful blooms were contributed, and some of the leading collections would have borne comparison with any that have been shown this year.

After some experience in Manchester in previous seasons the Committee of the Society very wisely accepted the cordial invitation to hold a show at Sheffield, an invitation that was supported by liberal financial arrangements, and as a very satisfactory result the Exhibition was attended by nearly 10,000 visitors, thus giving the encouragement that had been so well deserved. A Rose show in Sheffield is indeed a novelty, for it is said to be the first exhibition of importance exclusively devoted to Roses that has been held in the smoky town. The Botanic Garden was a well-chosen site, and the bright appearance of the grounds tended greatly to increase the attractions. A large marquee 70 yards in length was erected to contain the exhibits; two side tables extending the whole length of the marquee bearing the majority of the Roses, a portion of the central stage being also occupied with them. But on the latter table the chief feature was an extensive and beautiful group of plants from Messrs. Fisher, Son, & Sibray, Handsworth, comprising a large number of

Pelargoniums, Begonias, and miscellaneous flowering and fine-foliage plants. This contribution added considerably to the beauty of the Show, imparting a pleasing relief to the formal lines of boxes. All the arrangements were carefully executed, the only defect being an unfortunate delay in the judging, partially caused by the late arrival of an important exhibitor. With this exception everything was satisfactory, and it is to be hoped that many years will not elapse before Sheffield will witness another Exhibition of the National Rose Society.

AMATEURS' CLASSES.—In this portion of the schedule ten classes were devoted to amateurs, and for the convenience of exhibitors they were arranged in three divisions, no competitor being allowed to stage in more than one of those sections. Though the competition was not remarkably keen in any of the classes, yet several praiseworthy collections were contributed which for the freshness and good form of the blooms they contained have scarcely been excelled at either of the metropolitan Rose shows this year. The extreme heat, of course, exercised an injurious influence upon the general condition, and taking that into consideration with the distance many had travelled they were better than could have been expected. In Division C the chief class was for thirty-six single trusses, and in that Mr. T. Jowitt, Old Weir, Hereford, well won the premier prize of a silver cup value ten guineas, given by the Master Cutler of Sheffield, with blooms of fine quality and admirably representing some of the best varieties. Comparatively few weak blooms were observable, and the stand was good all round; but the following Roses were especially noteworthy for their substance and colour—Madame Charles Wood, Comte de Raimbaud, Lord Macaulay, Dupuy Jamain, A. K. Williams, Reynolds Hole, Horace Vernet, Marguerite de Brassac, Duchesse de Morny, Lord Herbert, and Duke of Edinburgh. The Rev. Canon S. Reynolds Hole, Cauntton Manor, Newark, was second, being a formidable competitor for Mr. Jowitt, and running him closely with bright fresh blooms, the only defect of which was perhaps a little want of size and substance. Mr. T. B. Hall, Larch Wood, Rock Ferry, Cheshire, was third with small but clean examples. For twelve triplets Mr. Jowitt was again to the fore with a similarly handsome collection to that which gained the honours in the preceding class. Duchesse de Morny, fine; Marie Baumann, A. K. Williams, very bright; Louis Van Houtte, Mons. E. Y. Teas, Le Havre, neat; and Horace Vernet, handsome, were some of the most noteworthy blooms. The second prize was withheld; Mr. J. Howe, Nottingham, being placed third with a fair collection. In the class for twelve Teas or Noisettes the chief prize consisted of five guineas and a silver cup, value ten guineas, presented by a member of the National Rose Society. This was won by Mr. T. B. Hall with a really handsome stand of blooms. The varieties were Souvenir d'un Ami, Madame Margottin, Madame Berard, Mons. Furtado, Comte de Paris, Niphetos, Catherine Mermet, Marie Van Houtte, Souvenir de Paul Neyron, Souvenir d'Elise, Marcellin Rhoda, and Madame Bravy. Canon Hole followed closely with a good collection.

The second division also contained three classes, the principal being for two dozen single trusses, in which five collections were staged. Mr. E. K. Whitwell, Barton Hill, Darlington, was the most successful exhibitor, gaining the five-guinea silver cup offered by the town of Sheffield for satisfactory fresh even blooms of the following among others—Marie Baumann, very neat and bright; Marguerite de St. Amand, full; Alfred Colomb, neat; Thomas Mills, fresh; Madame Hippolyte Jamain, large, good form; Mons. E. Y. Teas, Madame George Schwartz, Madame Noman, fine; and Charles Lefebvre. Mr. C. Davies, The Grammar School, Aynhoe, Banbury, was an admirable second with fresh substantial blooms of Devienne Lamy, Madame Charles Crapelet, Madame Prosper Langier, and Horace Vernet among others. The Rev. E. N. Pochin, Barkby Vicarage, Leicester, and the Rev. J. A. Williams, Yardley Wood Vicarage, Birmingham, secured the remaining prizes with blooms that had evidently been of fair quality, but which had suffered considerably in travelling. Mr. C. Davies had the best eighteen single trusses, followed closely by Mr. Whitwell and Mr. J. Radford of Nottingham, the prizetakers and the only exhibitors. Two stands of nine Teas or Noisettes were shown; Mr. Davies being again successful in obtaining the chief honours for neat and well-formed blooms of Madame Hippolyte Jamain, Homère, Smith's Yellow, Souvenir de Paul Neyron, Maréchal Niel, Catherine Mermet, Marie Van Houtte, Souvenir d'un Ami, and Alba Rosea—a very pretty collection. The Rev. J. A. Williams was second with smaller but fresh examples, Maréchal Niel, Céline Forestier, and Devoniensis being noteworthy.

In the third section of the amateurs' classes the keenest competition was for a dozen trusses, eight stands being entered. Mr. E. Loseby, Nottingham, secured the premier post of honour with fine blooms of Alfred Colomb, Docteur Andry, Madame Charles Wood, Charles Lefebvre, Victor Verdier, and Marquise de Castellane, these being much the best in the box. The Rev. J. H. Pemberton, Havering-atte-Bower, Essex, was accorded the second position for a collection very close to the other in merit; Mr. Julius Sladden, Seward House, Badsey, Evesham, and Mr. W. Wallis, Alexander Road, Burton-on-Trent, taking the other prizes in that order. The exhibitors and prizetakers for six single trusses were Mr. E. Mawley and the Rev. Alan Cheales; and for the same number of Teas or Noisettes the two last named were placed equal, preceded by Mr. J. H. Pemberton, all staging rather small but neat blooms. In the class for half a dozen distinct new Roses not in commerce previous to 1878, Mr. T. Jowitt

contributed the only collection, and secured the principal prize with good representative blooms of Mrs. Laxton, Duchess of Bedford, Harrison Weir, A. K. Williams, Penelope Mayo, and a seedling of moderately good substance and very bright in colour somewhat resembling A. K. Williams.

NURSERYMEN'S CLASSES.—Owing to a considerable delay in the judging of these classes, chiefly due to the reason above named, the tent was crowded with visitors holding private view tickets before we could obtain the necessary notes, and even securing the names of the best blooms in the leading collections was a work of considerable difficulty—almost an impossibility. This was especially the case with the stands of seventy-two blooms which were near the entrance to the marquee. Being the great feature of the Show the visitors clustered closely round these, and some of the ardent rosarians were so busily engaged in examining and criticising the respective merits of the blooms that they very reluctantly made way for others who were patiently waiting to obtain a glimpse of the stands. As regards quality the majority of the nurserymen's blooms were very satisfactory indeed; in several collections flowers were staged that have not been rivalled this season. There was, too, a noticeable difference in the relative position of the great Rose-growing firms, some that ranked high at the Sydenham and Muswell Hill Shows only taking second and third-rate positions at Sheffield, while the converse applied to some that had this season hitherto not been in their best form. The silver cup given by the Mayor of the town and £5, which constituted the principal award in the class for seventy-two blooms, were won by Cranston's Nursery and Seed Company, Hereford, who had a grand collection of fresh substantial blooms representing most of the best exhibition varieties in commerce, and well meriting the honour accorded for them. A dozen of the most noticeable were A. K. Williams, Senateur Vaisse, Mons. E. Y. Teas, Charles Lefebvre, Capitaine Christy, Beauty of Waltham, Camille Bernardin, Niphetos, Duke of Edinburgh, Madame Gabriel Luizet, and Madame Hippolyte Jamain. Messrs. Keynes & Co., Salisbury, followed with even and creditable blooms, La Rosière, Pierre Notting, and Alba Rosea being remarkably fine among many others of good quality. Mr. B. R. Cant, Colchester, was third with bright blooms, but slightly deficient in substance; Messrs. G. Paul & Son, Cheshunt, taking the fourth position. With forty-eight triplets Messrs. Cranstons were again the principal exhibitors, gaining the premier position with stands very similar in quality to those in the previous class. Messrs. Keynes & Co. also followed the Hereford firm as closely as before, staging fine examples of Alfred Colomb, Black Prince, Alfred Dumesnil, Charles Lefebvre, Star of Waltham, Madame Gabriel Luizet, Avocat Duviervier, Marie Rady, Ferdinand de Lesseps, Auguste Rigotard, and Souper et Notting. Messrs. G. Paul & Son were placed third for smaller but neat blooms. Twenty-four triplets were contributed by four exhibitors, Mr. G. Prince of Oxford being selected for the chief honours; his stand included some handsome blooms of approved varieties, fresh and of good substance. Messrs. Cranston and G. Paul & Son were second and third respectively. Tea and Noisette Roses were represented by three very satisfactory stands in the class for eighteen trusses, Mr. G. Prince securing the most important award with blooms of the style for which he is famous. Some of the best were Amazone, Devoniensis, Clothilde, Catherine Mermet, Souvenir de Paul Neyron, Niphetos, Souvenir de Jean Pernet, Souvenir d'un Ami, Marie Guillot, Marie Van Houtte, Madame Nabonnand, and Countess Ouvaroff. Messrs. Paul & Son were second, Souvenir d'Elise Vardon, Niphetos, Alba Rosea, and Devoniensis being good, Messrs. Cranston taking the third position. In the three other classes for nurserymen in the second division—namely, for thirty-six single blooms, eighteen triplets, and twelve Teas, the competition though not exciting was fairly good, the prize-takers being Messrs. H. Frettingham, Beeston, Nottingham; Davison and Co., Hereford; C. Turner, Slough; John Jefferies & Son, Cirencester; and Messrs. Cooling & Son, Bath.

OPEN CLASSES.—The most important of these was for twelve new Roses not in commerce previous to 1878. Messrs. Cranston carried off the premier prize with fine blooms of Countess of Rosebery, Dr. Sewell, Madame Julie Dymonier, Mary Pochin, much better and fuller than it has yet been shown this season; Madame Marie Verdier, Charles Darwin, Jules Finger, Madame Ducher, Duchess of Connaught, Richard Laxton, Souvenir de Madame Robert, and Mrs. Jowitt. Messrs. G. Paul & Son secured the second place with even fresh examples of Wilhelm Köelle, Comtesse de Choisseul, Ferdinand Chafolte, Madame Eugénie Verdier, Duke of Teck, May Quennell, Charles Darwin, Paul Jamain, Penelope Mayo, and Madame Ducher. Mr. H. Frettingham was third, staging similar varieties to those in the preceding two, except Constantin Tretiakoff, which was represented in the Nottingham stand. The next four classes were devoted to collections of a dozen blooms each of light and dark Hybrid Perpetuals, Teas, and yellow Roses. The best twelve blooms of a dark Hybrid Perpetual Rose among ten stands entered were exhibited by Messrs. Cranston, the variety being A. K. Williams, very fine in form, substance, and colour. Mr. T. Jowitt was a good second with admirable examples of Horace Vernet; Mr. G. Prince taking the third place with the same variety nearly equally as fine. In the corresponding class for light Hybrid Perpetuals Messrs. Cranston were again first with exquisite blooms of Madame Noman, as even as possible and of the most symmetrical form imaginable. This stand was greatly admired, and deservedly, for rarely has this beautiful

variety been seen in such condition. Mr. T. Jowitt followed with Duchesse de Morny, very handsome, and Messrs. John Jefferies and Son with Marguerite de St. Amand, also fine. For twelve blooms of a Tea or Noisette Rose Messrs. G. Paul & Son won the premier honours with Niphotos in excellent form; Messrs. Keynes & Son were second with the same variety; and Mr. B. R. Cant was third with Maréchal Niel, also taking the first place with that variety in the class for yellow Roses, in which Mr. G. Prince followed with Perle des Jardins neat and fresh, and Messrs. G. Cooling & Son with Maréchal Niel. The only other class in this section was that for three trusses of a new seedling Rose, to be called the Rose of Sheffield, but only one exhibitor appeared, and the variety was not considered sufficiently meritorious to receive the award.

DISTRICT CLASSES.—Six classes were appropriated to Roses grown in the district of Sheffield, five being for exhibitors residing within thirty miles of the town, and one for those within six miles. Entries in the majority of the classes were by no means numerous, nor were the blooms of extraordinary quality—indeed, some of the collections were much below the average. A few good stands were, however, contributed, and among these was the collection of thirty-six single trusses, with which the President of the National Rose Society, Canon S. R. Hole, of Cauntton Manor, Newark, secured the silver cup given by the President of the Sheffield Botanical Gardens. The blooms in this stand were very neat, bright, and mostly of good substance. The most noteworthy varieties were Xavier Olibo, Mons. E. Y. Teas, Marie Baumann, Madame H. Jamain, Louis Van Houtte, Duke of Wellington, Penelope Mayo, and Marie Rady. The only other exhibitor was Richard W. Proctor, Esq., Ashgate Road, Chesterfield, who was accorded the second prize. In the remaining classes the chief prizetakers were Messrs. R. Proctor; Charles Storey, Attercliffe; H. Brittain; John Bateman, South Street, Sheffield; W. G. Jackson, Mansfield; J. Mallinder, Hodsock Priory, Worksop; and T. Kirkby, Barnes Hall, Sheffield. The prizes for six trusses of Roses grown within six miles of Sheffield were offered by the Committee of the Botanical Gardens. There were thirteen collections staged, mostly of good quality considering the unfavourable district in which the Roses were grown. Mr. Enoch Holland, Sandygate, secured the chief position with fresh, bright, and pretty blooms, of which the best were Mons. E. Y. Teas, La France, Charles Lefebvre, Marquise de Castellane, and Fisher Holmes. This stand well merited its position, for the blooms would not have disgraced some of the larger collections. Mr. Frank Urton, Green Hill, Derbyshire, followed, having Marie Baumann, Capitaine Christy, Marquise de Castellane, and Charles Lefebvre in good form. Mr. J. Keeling, The Gardens, Mount View, was third with Souvenir de la Malmaison, Marquise de Castellane, John Hopper, Charles Lefebvre, and Marie Baumann, fresh and neat.

Roses in pots were represented by only one collection from Messrs. G. Paul & Son, who were accorded the premier prize for healthy and fairly well-flowered specimens of moderate size. Bouquets of Roses were numerous, and some were very tastefully arranged. These were distributed by lot among the lady visitors, and the demand was surprisingly great. The principal prizetakers in these classes were Messrs. Cranston, G. Davison & Co., G. Paul & Son, Cooling & Son, T. Kirkby, and G. Miller, Wadsley House.

The Society's silver medals for the best Hybrid Perpetual and the best Tea or Noisette were secured by Messrs. Keynes & Co. for Lord Macaulay, and Messrs. Cranston for Niphotos, both handsome representative blooms of their respective varieties.

HERBACEOUS AND ALPINE PLANTS.

(Continued from page 26.)

AQUILEGIAS.

A VERY showy genus, the generic name of which is derived from the inverted petals, which are lengthened out into long spurs, and bear a fancied resemblance to the talons of an eagle (Aquila); the English name Columbine, however, is derived from a far more peaceful member of the feathered tribe—the Dove (Columba), from a supposed resemblance of the flowers to little groups of these birds. The general characters of the genus are five regular petaloid sepals, which are for the most part highly coloured, and the same number of two-lipped petals, which are tubular and nectariferous at the base, whilst a portion of the stamens are very small and abortive, and five sessile many-seeded carpels, which assume the shape of little bags (follicles) when mature. In our younger days few gardens were without their Columbines, which were for the most part seedling varieties of the British species *A. vulgaris*, although some few exotic kinds have been introduced to cultivation upwards of a hundred years. We now, however, possess some very fine species, some natives of the mountainous parts of North America and California; others from the alpine regions of Europe, whilst a few have come to us from the lofty Himalayas. With some of these, which naturally grow at considerable elevations, difficulty is experienced in keeping them in a thriving condition; indeed, in the southern parts of England Columbines appear to exhaust themselves in one or two seasons; in the north, however, and in

Scotland they thrive with very little care. We have found that Aquilegias prefer a moist and sheltered position, but they like good exposure to the sun. The strong robust kinds will grow well and flower profusely in almost any ordinary garden soil, but the dwarfier and more delicate kinds which are placed in the rock garden should be planted in good friable loam. These plants cannot be maintained true by seeds if several species are grown together on account of their so freely hybridising, and undoubtedly many of the forms found wild are not distinct species, but natural hybrids and seedling varieties, so that when good and true seed cannot be obtained increase must be effected by division of the roots.

A. alpina.—This fine rock plant produces flowers nearly 3 inches in diameter, and is sometimes known by the name of *A. grandiflora*; it is not of a delicate constitution, and may be grown either in the rock garden or the border. The height is usually about 12 inches, but in some varieties this is exceeded, whilst in others it is considerably less. The whole flower is rich bluish purple in some varieties, in others the sepals and spurs are deep blue, whilst the petals in the centre of the flower are white; it also has short spurs. May and June. Alps of Europe.

A. aurea.—A vigorous-growing plant of great beauty. It attains a height of about 3 feet, bearing bold triternate glaucous leaves;



Fig. 2.—*Aquilegia cærulea*.

flowers of a uniform bright canary yellow tinged with green, the long spurs being recurved. May and June. California.

A. cærulea.—This beautiful little gem was originally confounded with *A. leptoceras*, a totally distinct plant. It is undoubtedly one of the very finest species yet introduced. The leaves are biternate, lobes broad and dark green. The stems are branched and bear a profusion of its large erect flowers. The sepals are delicate blue, and the petals white; the very long and slender spurs are also blue with green tips. There is also a pure white form of this species. It grows from 10 to 18 inches high, and flowers in June, continuing many weeks in full beauty. It delights in rich loamy soil. Native of the Rocky Mountains. The annexed reduced figure represents a plant of this species.

A. californica.—A superb border plant from California, attaining a height of 3 feet or more. It forms a fine mass. The flowers are deep orange outside, rich yellow within, the sepals and petals being much shorter than the spurs. July and August.

A. canadensis.—This species was first introduced to our gardens from Canada by Tradescant so long ago as 1640. It was much admired at that time, and the seed was eagerly sought, but it did not perpetuate itself always true. It is a desirable plant on account of its bright colour. It grows about 12 to 18 inches

in height, the sepals and petals being reddish-scarlet tipped with orange, the spurs short and straight. April and May.

A. chrysantha.—Another very fine Mexican border plant, attaining a height of about 2½ feet. Leaves ample, triternate, glaucous. The stems are much branched, and bear an immense quantity of its golden yellow, long-spurred, and very fragrant flowers. It is an exceedingly handsome species, commences to bloom about the month of June, and continues to make a grand display for many weeks. The woodcut is a reduced representation of this fine plant.

A. glandulosa.—With this lovely Siberian species we have experienced much trouble. At one time we concluded it was very delicate and could not endure our winters; now, however, we have altered our opinion, consider it quite hardy, and incline to the belief that it is of biennial duration only—at least this has been our experience in the London district. It well repays for all extra care and trouble; it grows in a tufted manner, and is dwarf in habit, seldom exceeding a foot in height. The leaves are triternate, segments coarsely lobed. Stems one-flowered. Flowers 3 to 4 inches in diameter; sepals nearly oval, very much larger than the petals, deep rich blue; petals the same colour, but tipped and margined with creamy white. It prefers a somewhat light and well-drained soil, but not peat. May and June.



Fig. 10.—*Aquilegia chrysantha*.

A. pyrenaica.—An exceedingly beautiful dwarf-growing rock plant from the Pyrenees. It attains a height of about 9 inches; it is tufted in habit. Leaves tripartite, obscurely lobed, glaucous. Flowers large, of a uniform purplish mauve; spurs short and thick, tipped with green. It flowers in May.

A. siberica (see page 56).—A handsome Columbine from Dauria, and hence occasionally seen under the name of *A. vulgaris dahurica*. The double form shown in the woodcut is particularly beautiful, especially when it has attained a good size. The flowers are rich blue and white, the leaves being palmately divided, and the plant of compact habit.

A. Skinnerii.—This is later flowering than the majority of the species. It grows upwards of 2 feet in height, and forms a beautiful plant in the border. The flowers are somewhat like *A. canadensis* in colour, being scarlet tipped with yellowish green. Unlike the last-named plant, however, the spurs are very long. It flowers in July and August. From Guatemala.

A. vulgaris is the English representative of this family, from which many beautiful forms have sprung. In the normal type the plants attain a height of from 1 to 3 feet. The flowers vary from blue to white and red. The cultivated varieties are very beautiful, some being large and pure white. *A. vulgaris alba*. Then we have double whites; *A. vulgaris albo pleno*, double blue; and a beautiful double striped *A. vulgaris caryophylloides*, in which the ground colour is white, the sepals and petals being flaked and striped with reddish crimson and purple. All the varieties of this species make showy border plants, and are useful for naturalising in woods and coppices.—W. H.

DESTROYING APHIDES ON PEACH TREES.—Judging from what is published at intervals on this subject it would appear that the "black fly" as it is termed, is difficult to extirpate. I will, therefore, state my experience in cleansing the trees. We have here a

fine wall of Peach and Nectarine trees, and when they were blooming the pests attacked them when the fruit had set. I syringed the trees on three successive evenings with one quart of Griffiths and Avis' tobacco water to four gallons of soft water heated to 120°, followed in the morning with a drenching of clean water from the garden engine. They became perfectly clean, and I have not seen an insect since. The trees are all carrying a heavy crop of fruit, and are in a very healthy condition. Trees in the neighbourhood are much injured by the Peach aphid this year, as no doubt those referred to would have been had not the above remedy been adopted, and especially applied in good time.—A. YOUNG.

WEST KENT HORTICULTURAL SOCIETY.

JULY 16TH.

CAMDEN PARK, Chislehurst, where the Show was held last Saturday, is one of the finest of positions for an exhibition of this nature on a tropical day. Highly situated, the benefit of whatever breeze there is, is perceived, while the timber trees afford the shade that is so grateful in sultry weather. The day of the Show, however, was not oppressively hot, and was largely attended during the afternoon and evening; and it must be said the display was worthy of all the patronage it received, and was a credit to the beautiful district in which it was held. On some former occasions we have observed that the leading nurserymen have been the chief contributors to the Society's shows; but it was not so on this occasion, the competition in the classes being excellent, and some of the plants were worthy of being staged at any show in the kingdom. True, several nurserymen arranged excellent groups—to wit, the General Horticultural Company, whose highly coloured Crotons associated with *Adiantum Bausei* were much admired; Mr. B. S. Williams, whose Orchids and collection generally, including a fine plant of *Cypripedium superbiens*, commanded attention; Messrs. John Laing & Co., whose really fine and valuable group was not surpassed for richness and effect; Messrs. Ponsford & Sons, florists, Brixton and Camberwell, whose plants were alike choice and in excellent condition; Mr. James Wingfield of Widmore Hill, Bromley, who arranged a display of considerable merit; and Messrs. Cannell & Son, whose magnificent stands of Zonal Pelargoniums and Verbenas commanded general admiration. Those exhibitors undoubtedly contributed admirably; but the local exhibitors in many of the classes occupied the space allotted to them most worthily.

No pretence is made to dwell on every collection and name every prizetaker, all that can be done is to refer briefly to the most noteworthy exhibits. In the open class for twelve stove and greenhouse plants in flower Messrs. Peed & Son, Norwood, were the only exhibitors, and staged a fresh and bright collection of medium-sized plants. In the class for nine plants Mr. Gibson, gardener to A. F. Burnaby Atkins, Esq., Halstead Place, Sevenoaks, secured the first position. Some of the plants were of remarkable merit. *Dipladenia amabilis* was the finest plant we have seen this year; *D. Regina* was very good, *Ixora Williamsii* superior, and *Stephanotis* and *Allamanda Hendersoni* were in a highly satisfactory state. Mr. Mitchell, gardener to Mrs. Arbutnot, Bridge End Place, was an excellent second, the notable plants being *Aerides odoratum* 4½ feet in diameter with sixty or seventy fine spikes, and a fine specimen and variety of *Anthurium Schertzerianum*. Mr. Archer, gardener to Capt. Aylward, Crofton Court, Orpington, was third with large plants of considerable merit. Single Zonal Pelargoniums in the open class were very fine, Mr. Mitchell having the first position with fresh, bright, and good examples not too formal; Mr. Lover, gardener to M. Hodgson, Esq., Shirley Cottage, Croydon, following rather closely. The same exhibitors, but in reversed positions, were successful with double varieties, which were better than are usually seen at exhibitions. Show and Fancy varieties were less noteworthy, the hot weather having deprived them of their freshness. There was good competition in the open class for nine fine-foliaged plants; Mr. Kent, gardener to J. Heritage, Esq., Lodgewood, Orpington, securing the first position, *Caladium Prince Albert Edward* being extremely fine. Mr. Mitchell followed closely with smaller but very fresh examples, the trio of *Marantas bella*, *ornata*, and *Jenningsii* being in excellent condition.

Ferns were admirably represented, some, or indeed most of the plants in the single specimen class, of which there were a large number, being of great excellence. The plant to which the first position was worthily assigned was a splendidly grown specimen of *Gymnogramma Wetenhalliana* exhibited by Mr. Mitchell. Mr. Gibson was second with a healthy example of *A. farleyense*; and Mr. Gammon, gardener to C. Bocsey, Esq., The Pines, Bickley, and A. Bradford, Esq., Elmstead, Chislehurst, equal thirds; the former with *Davallia Mooreana*, the latter with *Adiantum cuneatum*. We never saw this good old Fern staged in better condition, and if Mr. Bradford had been placed equal second instead of third no injustice would have been done. In the class for six plants Mr. Mitchell was again to the fore, followed by Mr. Saville, gardener to G. Phillips, Esq., Elmstead Lodge, Chislehurst, and Mr. Gammon, all of whom staged collections of great merit. Selaginellas were not equal to the Ferns, and only one plant, *S. involvens*, 4 to 5 feet in diameter, was noteworthy. It was exhibited by Mr. Cooper, gardener to M. Yeatman, Esq., Strawfield, Widmore Hill, the chief prizetaker in the classes for these plants. The best Gloxinias—and fine they were—came from

Mr. Bridger, gardener to J. B. Alston, Esq., Fairfield, Bickley, some of the plants bearing nearly a hundred flowers. The same exhibitor was first with Achimenes, which were excellent. The best Fuchsias and Dracænas, both good, came from Mr. Mitchell; Tuberous Begonias, also good, from Mr. Saville; and Caladiums from Mr. Gammon. Messrs. Archer, Mitchell, and Whitehouse, gardener to J. Cameron, Esq., Park Road, Beckenham, also shared in the honours in these classes.

ROSES.—Considering the great heat of the preceding days Roses were remarkably fresh but on the whole rather small, it evidently having been necessary to cut before the blooms were expanded. In the open class for forty-eight triplets Mr. Cant, Colchester, secured first honours with an excellent collection containing many fine blooms, the remaining prizes going to Messrs. Paul of Cheshunt and Laing of Forest Hill. These exhibitors had the same positions in the class for twenty-four single blooms, all staging well. For twelve blooms (open class) E. Mawley, Esq., Lucknow House, Croydon, was an easy winner with fresh and good blooms, Innocente Pirola being the gem of the stand. Mr. Rumsey, Waltham Cross, and Mr. Bunyard, Maidstone, followed in this class, their collections being of nearly equal merit. For twelve Roses of any one variety Messrs. Paul were first with a beautiful stand of Niphetos, Mr. Cant second with rather small but very bright blooms of Maréchal Niel, and Mr. Rumsey third with Pierre Notting.

In the amateurs' class of twenty-four single blooms Mr. Burnaby Atkins was an excellent first, and secured the National Rose Society's medal with a charming stand, in which Duke of Connaught, very bright; Reynolds Hole, Dupuy Jamain, Annie Wood, Marie Baumann, Dr. Andre, Madame Margottin, Jean Pernet, Madame Bravy, and Souvenir de Paul Neyron showed to great advantage. The flowers were remarkably well staged and the foliage very good. The Society's bronze medal was won by Mr. A. Pearce with beautifully fresh but small blooms and fine foliage. Messrs. Christy, Whitehouse, Cameron, and Mrs. Fuller were also prizewinners, the last-named exhibitor staging a beautiful stand of Marie Van Houtte, and Mr. Christy one of Comtesse de Serenye, which secured the chief prize in the class for one variety. Owing to some mistake in placing the prize cards we were unable to distinguish the winners of several of the prizes.

TABLE DECORATIONS.—Special attention is devoted to this section of the Show, and liberal prizes are provided. A large marquee was devoted to the exhibits, which were characterised by extreme lightness. The first-prize table, 10 by 5 feet, was arranged by Miss R. A. Tweedie, Borington, Bickley. The centre was an oval lake with a porcelain boat decked and surrounded with grass and Cornflowers. This centrepiece was about 4 inches high, and its toy-like artificiality was the weak point of an otherwise chaste and charming table, the eight small baskets and vases being tastefully filled with Tropæolums, yellow Columbines, and grasses. The second-prize table of Mrs. T. A. Mitchell was more free and pleasing, but we understand the Judge did not consider it sufficiently diversified, all the vases being filled alike. Miss F. A. Sentence was placed third for a chaste yet bright arrangement, and an extra prize was deservedly awarded to the Misses Scott of Abbyfield, Binkfield, for a most tasteful arrangement of grasses and Poppies, also to Miss Baggallay of Beckenham; but why the beautiful table of Mrs. Scott, jun., of Elmfield was passed over surprised not a few critical visitors. The smaller tables furnished with wild flowers were charmingly arranged, the successful exhibitors being Misses J. & A. Turner, Sentence, and Field.

FRUIT AND VEGETABLES.—The display was not large but generally very good. Mr. Tucker, gardener to J. Lovibond, Esq., Starts Hill, Farnborough, was very successful, winning the first prizes for a collection of nine dishes for black and white Grapes, heaviest bunch of Grapes, Melon, Cherries, and three dishes of Strawberries. Mr. Mitchell was first with Muscats, good; and Messrs. Bradford, Maynard, Whitehead, and Gammon secured prizes for highly creditable produce in the different classes. A collection of fruit of great merit was also staged by Mr. Neighbour, gardener to G. Wythes, Esq., Bickley Park. A noticeable feature of this department was the Eleanor Strawberry, represented by many fine dishes, showing its excellence as a late variety.

Vegetables, considering the tropical heat that has lately prevailed, were very good indeed and a credit to the exhibitors and prizetakers, Messrs. Gammon, Real, Maynard, Humphrey, and Eke. The cottagers' produce was also of a very high order of excellence.

The Exhibition was well arranged by Mr. Eyles, and the Secretary and Committee vied with each other in rendering it as agreeable as it was successful.

COLEWORTS.

PROBABLY few crops are of greater service in the garden than Coleworts, and yet they seldom have prominent notice in the gardening press. This is one of the staple crops of market gardeners, who occupy ground with Coleworts that has been vacated by early crops of Peas, Potatoes, &c. They are also planted between rows of Dwarf Kidney Beans—in fact everywhere where space can be found either between other crops or under trees. They are pulled up and sold in bunches during the winter and spring, and when fresh no green vegetables are more delicious. Coleworts, then, it will be seen, form an adven-

titious crop of such great value as to be regarded as a staple product of the garden. Almost any of the small Cabbages of the Early York type may be used as Coleworts, and as regards quality nothing of their kind can surpass them, but they lack the all-important essential of hardiness, which is possessed by the true Rosette Colewort. It is questionable if the frost-enduring property of this variety is sufficiently understood by cultivators generally. During the last extremely severe winter large breadths passed almost scatheless through the ordeal, while Savoy and Kales were killed. Probably the dwarf habit of the Colewort was much in its favour, as the plants could be the more effectually protected by the snow; but apart from this it is a distinctly hardy vegetable, and as such it has strong claims to the notice of gardeners.

The plants ought now to be ready for planting out, and those who do not possess them would make as good an investment in purchasing a few hundreds as in buying a new Coleus. An impression prevails in the minds of some people that early July is soon enough for sowing Coleworts; but it is not. About the middle of May is the proper time, and the plants are then ready just when they are wanted, and have time to become strong before winter. Strong plants may be planted about 15 inches apart, and if they have been raised from a true stock they will have an attractive appearance in the autumn, as all the plants will be of the same height, and the rosette-like heads appear as if they had been cast in a mould.

Those who had large breadths of Coleworts last year felt themselves fortunate, but such individuals were not a majority; on the contrary, this simple yet important crop was absent from many gardens. The value of this crop is now referred to, so that those who desire to have it in their gardens may obtain plants, as there is no better time than the present for planting, and vacant ground cannot be better occupied than by devoting at the least a portion of it to the really serviceable vegetable.—A MARKET GROWER.

KINGSTON AND SURBITON ROYAL HORTICULTURAL SOCIETY.—JULY 13th.

THE seventeenth annual Exhibition of this Society was held in the beautiful grounds of Bank Grove, Kingston, the residence of J. C. Freake, Esq. Bank Grove is charmingly situated on the banks of the Thames, and has been long celebrated for its collection of Camellias, Sikkim Rhododendrons, and rare exotics. The grounds contain many very fine examples of Coniferae, besides numerous lofty and stately old trees; it was under the shade of some of these the Society were fortunate in being allowed to pitch their tents, and never have they had such a fine display. The large marquee, 150 feet long by 50 feet broad, was full, and presented a most pleasing effect. The centre stage was occupied with the larger foliage and flowering plants tastefully arranged, while at the sides on the ground were sixteen groups of plants, most of them in competition.

Prizes were given by H.R.H. Prince Leopold for groups to occupy 100 square feet, arranged for effect, and there were six competitors, all exhibiting good and close collections. The Judges experienced great difficulty in determining the awards, for none of the six collections contained a bad or unsightly plant, and each was arranged with great taste. The premier award was secured by Mr. Beckett, gardener to J. C. Currie, Esq., Sandown House, Esher, but he was run very closely by Messrs. Hooper & Co., Covent Garden, who, in the opinion of many, had the most effective group. Messrs. Hooper and Co. received the second prize, and Mr. Brown, nurseryman, Richmond, the third. Messrs. Laing & Co., Forest Hill, and Mr. Stevens, nurseryman, Putney, also exhibited in this class good collections. The Society also provided substantial money prizes for groups of smaller dimensions, 50 feet square; there were also six entries in this class, and the awards were made in the following order:—Mr. Brand, gardener to W. Clay, Esq., Elm Villa, Kingston; Mr. Croxford, gardener to Mrs. Dunnage, Albany House, Surbiton, and Mr. Clark, gardener to A. Nagle, Esq., Surbiton. For twelve miscellaneous plants Messrs. Jackson & Son, Kingston, were first, exhibiting amongst others a very fine *Ixora Williamsii*, *Calanthe veratriflora*, *Dracophyllum gracillimum*, some large Ericas, and a handsome *Statice*. Mr. W. Bates, gardener to J. Meek, Esq., Twickenham, who received the second prize, had charming specimens of *Allamanda Hendersonii*, *Stephanotis floribunda*, and *Cocos Weddelliana*. Messrs. B. Peed and Co. were placed third. For nine stove and greenhouse plants Messrs. Jackson & Sons and B. Peed & Co., Norbury Nurseries, Streatham, were the only exhibitors, and were first and second respectively. In the class for six stove and greenhouse plants Messrs. Croxford and Beckett divided the honours in the order of their names. Fine-foliage plants were numerous staged, there being no less than nine competitors. The chief award fell to Messrs. Hooper & Co.; Mr. Crafter, gardener to Miss Finch, Kingston Hill, was placed second, and Mr. Gregory, gardener to J. Weymouth, Esq., Bushey Nook, Teddington, third. Ferns were well represented in both the classes for six and three exotics and for nine British, the chief awards

being obtained by Messrs. Beckett, Crafter, and J. Watson, gardener to Captain Cundy, Surbiton. Fuchsias, Gloxinias, Achimenes, Begonias, Caladiums, and Coleus were well represented, and added much to the general effectiveness of the Exhibition. Mr. Wiggins, gardener to H. Little, Esq., Hillindon Place, Uxbridge, staged a large and effective group of miscellaneous Pelargoniums, and was first in the class for six Show varieties, Mr. Croxford second, and Mr. Beckett third. For six Fancies Messrs. Attrill, Beckett, and Wiggins were placed in the order of their names.

Cut Roses formed a most important addition to the Show. Messrs. Paul & Son, Old Nurseries, Cheshunt, Messrs. Laing & Co., Forest Hill, and Mr. W. Rumsey, Joynings Nursery, Waltham Cross, were first, second, and third respectively for forty-eight cut blooms, distinct. In the class for twenty-four Mr. C. Davies, The Square, Wilton, Salisbury, was first, and Mr. Moorman, gardener to Miss Christy, Coombe, second. Several collections of twelve and six Roses were staged, the majority of them being of good quality. Messrs. Lee & Son, Hammersmith and Ealing, sent six boxes of Roses, not for competition, and Messrs. Veitch & Son the same number of boxes, each box containing twenty-four varieties, the whole of which found a large number of admirers.

Fruit, especially Grapes, were well exhibited, Mr. Bates gaining the first prizes in both classes for black and white Grapes; in the other classes, though only moderately filled, the quality was very satisfactory.

Vegetables were also of first-rate quality, Messrs. Beckett, Starr, and Waite sharing the honours in the class for twelve distinct varieties, and Messrs. Crafter, Lambert, and Croxford for six.

Six competitors entered for the special prizes given by Sir Trevor Lawrence, Bart., M.P., for nine plants suitable for the table. All the collections were very evenly matched. Messrs. Beckett, Brand, and Brown were the prizetakers. Table decorations and buttonholes were well represented, as well as the amateur and cottagers' divisions. Miscellaneous groups were contributed, not for competition, by Messrs. Lee & Son, Hammersmith and Ealing. This firm contributed three groups, each illustrating the usefulness of hardy trees and shrubs for effective grouping; one of these groups contained a large quantity of small and beautiful Roses in pots, which were much admired; other contributors, not for competition, were Messrs. Jackson & Son, Wiggins, and Slade.

FRUIT PROSPECTS IN GLOUCESTERSHIRE.

THE fruit prospects in this part of Gloucestershire are better than they have been for several years past. A larger and better crop of Strawberries I never had; in fact I have had so many that I have not known what to do with them. It has been a decided case of *embarras des richesses*. We have filled all the jam pots, given away to friends several basketfuls in a day, sent fruit to the hospitals, invalids, &c., and yet that did not clear them off, so I invited troops of children to come in and assist. The varieties I grow are Early Prolific, Keens' Seedling, Vieomtesse Héricart de Thury, Sir J. Paxton, and President, with a few of Myatt's Prolific, Lucas, and Myatt's Victoria. The Raspberries bid fair to be as good a crop as the Strawberries. I have also good crops of Red Currants, Black Currants, and Gooseberries. Plums are a fair crop. The Apples are a good crop; I thought I should have some thinning to do, but many fruits fell off in kernelling, but there are plenty left now. The Pears are partial, some trees with plenty of fruit, others a blank. I have only one Peach and one Apricot tree, and they have fruit this year. I do not attempt to grow these last-mentioned fruits, because in our cold springs they are usually disappointing. It is better to have a crop of Victoria Plums every year than a crop of Peaches one year in seven, which is about all we can rely upon. The fruits should be under glass in this part of the country. I have not been in many other gardens, but in those I have seen, and from what I hear generally, the small fruits are plentiful, and there is a good sprinkling of Apples.—AMATEUR, Cirencester.

WEST OF ENGLAND ROSE SHOW AT HEREFORD.

IN the train from Credenhill to Hereford on the early morning of July 6th a pretty and very well-developed Hereford lass remarked, "I knew it would rain cats and dogs to-day." I said, "Why?" "Don't yer know, sir, it's the Hereford Rose Show?" It did rain and no mistake, and witbal just when the local growers would be cutting their blooms. However, as a slight encouragement for next year, it did not rain quite so hard this year's Show day as last year's! But to business. The Show was not a great success. It was small, very small, for Hereford. The writer of these notes saw two years ago six seventy-twos staged for certain, if not seven—the "HEREFORDSHIRE INCUMBENT," who was then Secretary, would know which figure is the correct one—and yet there were some good boxes shown. The famous Hereford growers—the Cranston's Company and Mr. Jowitt—were in much better form than they were four days before at the Crystal Palace.

In the amateurs' classes for thirty-six single trusses Mr. T. Jowitt

was first, staging grand blooms of Marie Louise Pernet, Duchesse de Vallombrosa, Marquise de Mortemart, Marie Baumann, Senateur Vaisse, Dupuy Jamain, Louis Van Houtte, Duchesse de Morny, Madame C. Wood, Mary Pochin, and Annie Laxton. Mr. J. H. Arkwright of Hampton Court, Leominster, was a very good second, his colour being throughout excellent. A bloom of Sultan of Zanzibar in this box was perhaps the most remarkable Rose in the Show; it was in form after a grand Louis Van Houtte. Monsieur Noman, Le Havre, very large; Ernest Herger (a Rose I never saw before), Baron Hausmann, A. K. Williams were also very good. Rev. C. H. Bulmer was third with good blooms of Madame C. Kuster, Mons. E. Y. Teas, Annie Wood, very beautiful; and Lord Macaulay. For eighteen trebles Mr. Jowitt was again first. Here Mons. Noman was very good, and Duchesse de Morny in that perfect colour, form, and size in which he alone seems able to exhibit it. Mr. J. H. Arkwright was second with good and very bright examples of Edouard Morren and Marie Cointet. Mr. Thomas Jowitt was the only exhibitor in the class for twenty-four singles. La Duchesse de Morny was again splendid, also Mabel Morrison was much fuller than usual and of the purest white, while Dupuy Jamain was grand in size, substance, and colour. For twelve singles Mr. Thomas Jowitt was first, and the Rev. J. A. Williams, Yardley Wood Vicarage, second.

In the nurserymen's seventy-twos (open) Cranston's Nursery and Seed Company were first, the following blooms being very good:—Mrs. Baker, La France, Ferdinand de Lesseps, Princess Mary of Cambridge, Dr. Andry, Marquise de Mortemart, Le Havre, Mdlle. Eugénie Verdier, Thomas Mills, Marie Cointet, superb; Horace Vernet, Maréchal Niel, Madame Ducher, Madame A. Dumesnil, Abel Carrière, A. K. Williams, Mdlle. Bonnaire, good size; Adam, Miss Hassard, Constantin Tretiakoff, Mons. E. Y. Teas, Nipbetos, La Rosière, Anna Ollivier, Catherine Mermet, Perle des Jardins, Madame Marguerite Manvoin, and Madame Noman, a lovely bloom. Second Messrs. Curtis, Sandford, & Co. with good samples of La France, Souvenir d'un Ami, Fisher Holmes, and Harrison Weir. Third Messrs. Davison & Co., Hereford. In this stand I noticed as particularly good A. K. Williams, Ferdinand de Lesseps, and Star of Waltham. For seventy-two single trusses, distinct, open only to growers outside Herefordshire, Messrs. Curtis, Sandford, & Co. were the only exhibitors, and were awarded a special prize. For thirty-six trebles Cranston's Company were first with Constantin Tretiakoff, Charles Lefebvre, Annie Laxton, and Madame Furtado especially fine. Messrs. Davison & Co. second with lovely trebles of Xavier Olibo, Comtesse C. de Chabrilant, and Marie Cointet; and Messrs. Curtis, Sandford, & Co. third. Considering that Messrs. Curtis had to cut early the day before and travel so far that extremely hot Tuesday (the 5th), it is wonderful how they managed to show as well as they did. Some of the Teas were excellent. Mr. Grant of Hope End, Ledbury, was first for twelve distinct, with large and well-formed examples of Homer, Nipbetos, Devoniensis, and Jean Pernet. Cranston's Company second, and Messrs. Davison third. In Class D, twenty-four single trusses of any one Rose, there were four boxes staged—two each of Marie Cointet and Comtesse de Serenye. Cranston's Company were first with Marie Cointet; Messrs. Curtis, Sandford, & Co. second with Comtesse de Serenye; and Davison & Co. third with Marie Cointet. In the classes open to amateurs residing in Herefordshire Miss Bulmer showed well. In the class for twelve trebles Duke of Edinburgh, Madame Rothschild, Marie Van Houtte, and Monsieur Boncenne were really grand. These Hereford prizes were divided generally among Mr. Grant of Hope End, Mr. Woodhouse, and Mr. Talbot, gardener to Sir G. Cornwall, Moccas Court.

I cannot leave this short report without bringing to the notice of the readers of the Journal a box of six Maréchal Niels exhibited in the cottagers' class. The plant which bore these blooms was, I hear, budded on a standard Briar and planted against an ordinary thatched Herefordshire cottage, all the six blooms being plucked from underneath the eaves of the roof. I measured one, the largest bloom, and although it had not lost its shape the diameter was 7½ inches! I remember Mr. George Paul's fine blooms last May, but he would have been the first to acknowledge the size and splendour of this cottager's six.

I hope that he who reports the West of England Show next year will not lose his notes, so that the delay occasioned this year may not occur again. I have purposely left out much matter which, however interesting it might be to Hereford, yet would "fall flat" if printed more than a fortnight after the Show.

PELARGONIUMS AT SWANLEY.

A LARGE establishment, where all the best varieties in commerce are grown, affords an excellent opportunity for comparing the merits of the varieties and noting those that are in superior condition at the time the collection is inspected. A visit is thus rendered instructive, and a record of it, however brief, may prove serviceable to those who have not the opportunity of inspecting the plants.

Several houses, each 100 feet long, are devoted by Messrs. Cannel & Son to Pelargoniums of all kinds; Zonals, Show, Fancy, Ivy, tri-color, and bronze types being represented, but the single and double Zonals were particularly numerous. Two houses were occupied with the varieties in each of these sections, and the blaze of

colour produced can scarcely be imagined by those who have not witnessed such a display. It is, indeed, an exhibition in itself, and one that represents the outcome of intelligent persevering application by many individuals to the crossing and rearing of improved forms in this large and beautiful section of a great genus.

Taking the double varieties first, a few of the best were the following:—F. V. Raspail, a handsome variety, with deep rich scarlet flowers of excellent form, and borne in compact trusses. Mr. H. Cannell, an American variety of great promise, very bright scarlet; truss large. Jewel, a fine old scarlet-flowered variety, is very useful, as the individual pips being of good form, bright in colour and furnished with long stalks, are admirably suited for wiring singly for buttonholes or bouquets, but especially for the first-named purpose. Emile de Girardin is one of the best rose-pink-flowered doubles in commerce, raised by M. Lemoine of Nancy. The flowers are of fine even form in full compact trusses. M. Lelandais, also pink and from the same raiser, is a considerable improvement upon an older variety known as Madame Boutard. Roi des Violettes, very distinct, especially remarkable for the bright purplish violet tint of the flowers, the shade distinguishing it amongst hundreds of other plants of the same type. Victor Hugo, a variety with salmon-coloured flowers, scarcely surpassed in the tint; the truss, too, is of considerable size and very full. Mr. A. Dupuis is a lighter-tinted form of the same colour, but not less



Fig. 11.—*Aquilegia siberica* fl.-pl. (See page 53).

beautiful; the petals having a faint margin of white, which imparts a peculiar appearance to the plant. Heroine and Candidissima plena were the two finest double whites in flower at the time of my visit. The former is noteworthy for the great size yet neat form of the flowers, while the latter has the pips unusually full.

The single Zonal varieties were even more brilliant than the doubles, for, like many other plants, the shades of colour never seem so dazzling in the latter as in the former. When large numbers of plants are together this is particularly noteworthy, and I have never seen a more striking instance of the fact than the one now recorded. The difficulty of selection, too, is much greater among the singles, for there are so many of first-rate quality both in colour and form of flowers, that for every one named below there are half a dozen equally good. Two remarkably beautiful forms are Dr. Orton and Henry Jacoby, both somewhat in the style of the Nosegay section with enormous trusses of dark crimson flowers. These are, indeed, the two darkest forms at present grown, and latterly Henry Jacoby having received so many favourable comments in the Journal, the demand has increased to such an extent that the supply can only be maintained with considerable difficulty. It is most effective in pots, and in some gardens it has been employed for bedding-out with such satisfactory results that still further attention is being given to it for this purpose. Future Fame is a remarkable variety with very large bright scarlet flowers of excellent form and substance. Some of the single pips exceeded 2 inches in diameter, and a good truss of such flowers, as can be readily imagined, is very effective. Sybil Holden is a beautiful pink-flowered variety, especially useful in winter, when its large handsome trusses are freely produced, and the soft tint of the flowers is very pleasing. Lizzie Brooks is a thoroughly

useful scarlet form of dazzling colour, and very free. Guinea is well known as probably the nearest approach to a yellow yet obtained amongst Zonal Pelargoniums; the flowers, too, are of neat form, and the truss is full and compact. Miss Hamilton, with delicate pink-tinted flowers, is very attractive, and deserves to be included in all collections. Fanny Catlin is one of the best salmon-coloured varieties, the pips being of considerable size, symmetrical form, and rich colour. Many more were worth noting, but especially the white variety Eureka, which has been several times exhibited at Kensington, and was early in the present year honoured with a certificate. It well maintains its character as one of the best in its class; it is very compact in habit, the flowers being large and pure white.

Houses of similar dimensions to those above mentioned are devoted to the Ivy-leaved forms, the Show, Fancy, Decorative, Tricolor, and Bronze varieties, all in similarly beautiful condition, and to enumerate the best of which would alone fill several pages. A few additional notes will, however, be reserved for transcription at some future convenient opportunity: and in the meantime all those who wish to obtain an adequate idea of what has been effected in improving the Pelargonium should endeavour to visit the "Home for Flowers" at least once in the season.—AN AMATEUR FLORIST.

THE CHISWICK, TURNHAM GREEN, AND DISTRICT HORTICULTURAL SOCIETY.

LAST April an Exhibition of spring flowers was held in the Vestry Hall at Turnham Green on behalf of the funds of the West London Hospital, and the results were so encouraging that it was determined to form a Society in the district. A Committee was formed, the patronage of the Royal Horticultural Society was secured, and permission to hold the Shows in the Chiswick Gardens was granted. The Society was thus established under favourable auspices, and with a practical executive and such industrious officials as J. T. Smith, Esq., as Honorary Treasurer; J. T. Musgrave, Esq., as Honorary Secretary; and Mr. A. F. Barron as Honorary General Manager, an excellent schedule was prepared, which resulted in a good and well-arranged Exhibition on Thursday last.

The Show was in one respect novel, as it was the first that has probably ever been held in a vinery. The day was one of the hottest of the year. "Why not, then, have held it under canvas in tents on the lawn?" some may ask. The answer is simple, "Because such tents are too hot." As practical gardeners know, a large and well-ventilated vinery, with the roof covered with foliage, is really cool and refreshing during a brilliant tropical day. But besides the shaded roof in this case a canvas awning was provided, and the result was that, except in the shade of the few large trees, the vinery was the coolest place in the garden, a tent in which the table decorations were placed being oppressively hot in comparison.

But the vinery in question is an exceptional one. It is nearly 200 feet long, about 30 feet wide, and so lofty that an arch-like ladder on a railway is provided for the convenience of the Vine-dressers. It was, then, in this great curvilinear structure that the Show was held, and the exhibits occupied every available foot of space. Down the centre were arranged the groups of plants for effect and large specimens in the classes, the side tables being devoted to smaller plants, fruits, vegetables, Roses, and other cut flowers.

Only a sketch of the Show can be given and the prominent exhibits noticed. Undoubtedly the great feature of the Show was the competition in the open class for the effect groups, the space not exceeding 100 square feet. The groups were semicircular, and the plants arranged on the ground. As examples of picturesque arrangement the winning groups have never been surpassed; indeed, the third-prize collection of Messrs. Hooper would have had a first position in any other show that we have seen where there has been competition for groups of this size and form.

It is not easy to describe the groups, but an idea may be afforded of their charming appearance. The first-prize arrangement of Mr. Brown, St. Mary's Grove Nursery, Richmond, was light, free, cool, yet bright. The groundwork was of Maidenhair Ferns, rising from which here and there were Gloxinias, and towards the front small plants of Caladium argyrites. The central large plant was a well-coloured example of Croton undulatus, flanked with rather tall Cocoses. At the back were taller Palms and an untrained Allamanda. All these plants were thinly disposed, so that there was abundant space between and under them for small Ixoras, Kalosanthes, and Pandanus Veitchii, which appeared as if growing from a groundwork of Ferns. There was a little too much packing of the smaller plants near the front—a fault that is apparent in nine out of every ten groups of this nature; but taking it altogether the arrangement was very beautiful. The second-prize group of Mr. Hudson, gardener to H. J. Atkinson, Esq., Gunnersbury House, was a marvel of elegance and grace. The groundwork was generally the same as the other, but with more and better Gloxinias, but no touches of bright colours. The pretty base was canopied with the most slender of Palms, through which the groundwork was seen as if through a gauze-like network of foliage. The back plants were heavier Palms, a Croton flanked with Pandanus Veitchii and Liliums. If there was a fault in this

group it consisted in the light Palms being placed with too great regularity, which gave to the arrangement a rather formal aspect, and a few brighter flowers were wanted to add richness; still the group was a charming one, and was much and deservedly admired. The third-prize group above alluded to was the most free and natural in arrangement of the whole. There was a total absence of packing and formalism; in fact, if we suppose the groundwork of small Ferns had been grass a child might have crept all over the space round and under the other plants without injuring them. The central plant was a fine specimen Tuberos Begonia, relieved by silvery Caladiums and isolated clumps of Paris Daisies, the whole overhung by a back central Palm. In the front were three Dracænas placed triangularly with a Carnation in the centre. Towards the margin Gloxinias, Panicums, and small scarlet Begonias were arranged amongst the Ferns, and the two back flank plants were a pair of fine Cocoses; altogether this was a rich, diversified, and meritorious arrangement. Mr. Fromow, nurseryman, Turnham Green, was deservedly awarded an extra prize. Mr. Darvil, gardener to C. Brown, Esq., Grosvenor House, Gunnersbury; and Mr. Stevens, St. John's Nursery, Putney, arranged creditable groups in this fine class. Valuable and artistic groups not for competition were provided by Mr. Herbst, Richmond, who turned the fine Liliun Brownii to excellent account with Ferns and dwarf Palms; by Mr. Roberts, The Gardens, Gunnersbury Park, whose plants were excellent and tastefully dispersed; and by the General Horticultural Company, the group being large, varied, and most meritorious, the brightness of choice Crotons and Dracænas having a fine contrasting effect. The amateurs' groups of 60 feet must be dismissed in a few words. By the want, we presume, of a more suitable position and more space they were packed on a high stage in three narrow tiers, and the effect was destroyed; indeed, exhibitors have no chance of arranging their plants effectively under such conditions. If they must have a stage let it be a foot only from the ground, and quite flat. The successful competitors were H. Perkes, Esq., Heathfield Cottage; J. Donaldson, Esq., Tower House; and B. Hardy, Esq., Gordon House, all of Chiswick. As a rule staging for groups is not required, and there is a great deal too much timber used in exhibitions generally.

Mr. Croucher, gardener to J. Peacock, Esq., Sudbury House, Hammersmith, arranged a very interesting group of plants in the cut-flower tent; Cycads and Orchids being attractively associated, and succulents were curious in more ways than one. A venerable pair of *Pilocerus senilis* grey with age represented the "old man and woman," smaller plants "the children," and a mere dot "the baby." *P. Dantivizi*, trim and stately, impersonated "rich relations" that stood a little aloof; and three rather seedy-looking examples "impecunious relations" that lurked partly in the background. To complete the fancy, *Odontoglossum vexillarium* was submitted as typical of civilisation, and *Echinocactus grandicornis* of savage life. A little discussion was had as to whether Mr. Peacock's plants or his gardener's were the most curious examples of creation, and the question was left an open one.

In the specimen plant classes Mr. Hudson overpowered all rivals, his plants, both ornamental-foliaged and Ferns, being of striking excellence.

Amongst cut flowers Messrs. Lee & Sons' six boxes of beautiful Roses, and Messrs. Cannell's splendid contribution of Zonal Pelargoniums and Verbenas, far surpassed any exhibits in competition, and added greatly to the beauty of the Show. Messrs. Hudson, Brown, and Harris showed good mixed stands, the last-named exhibitor winning a special prize given by Mr. Aldous for table decorations. The prize brides' bouquets consisted almost entirely of *Stephanotis* and Ferns, and the epergnes generally were overcrowded with flowers.

The show of fruit was of limited extent, but the quality was generally good. Mr. Hudson was very successful, and his prize collection of six dishes included splendid Madresfield Court and good Muscat Grapes, a Queen Pine, Marcellus Melon, Bigarreau Cherries, and Lord Napier Nectarines; and a most meritorious collection, not for competition, was staged by Mr. Roberts of Gunnersbury Park, including splendid Foster's Seedling and good Black Hamburgh Grapes, all the other dishes bearing the stamp of good cultivation.

Vegetables were not noteworthy, except the four dishes of Peas, Stratagem, Pride of the Market, Telephone, and Telegraph, staged by Messrs. Marriot and Richardson of Boston, who were awarded the prizes in the order named. These dishes were magnificent, the pods being marvels of high cultivation, such as have not been surpassed at any show, if equalled.

Messrs. Charles Lee & Son arranged highly attractive groups in the open air, consisting of a fine assortment of ornamental deciduous trees from their arboretum, with Roses, Euonymuses, &c. Specially noticeable were the fine variegated shrubs *Acanthopanax variegata*, suitable alike for forcing and border decoration, and *Cornus mascula elegantissima*, compact in habit and rich in colour. The Fairy Rose, Little White Pet, was also much admired, and should be grown by all who desire a profusion of small pure white flowers for cutting.

Altogether the Show was very satisfactory, and the gardens were greatly enjoyed by the large number of visitors.

FOXGLOVES.—We have these in various colours, from dingy yellow, various shades of pink to pure white, some spotted and some self-coloured, and they are just now amongst the most beautiful

of flowers. We find them growing wild in clumps sheltered in front of some native shrub, a mass of wild Rose or Bramble very likely, and in a state of cultivation no position suits them better than in front of shrubs. The present is the time to plant out seedlings to flower next summer. Since I planted some five or six years ago they have become quite naturalised here.—R. P. B.

THOUGHTS ABOUT ROSES.

[Uttered at Sheffield, July 14th, 1881, by the Rev. S. Reynolds Hole.]

MANY years ago, in the palmy days of the Garrick Club, when Dickens, and Thackeray, and John Leech, and A'Beckett, and Douglas Jerrold, and Shirley Brooks, and many other bright stars no longer visible in this firmament, were its constant inmates, I was engaged there one evening, like a good gardener, in the act of fumigation—I was destroying a weed. I had two companions, and a conversation arose between them concerning a work which had been recently published, and had created a great interest—Buckle's "History of Civilisation in England." The dialogue ultimately resolved itself into an argument as to the future achievements of science and philosophy; one of the speakers, who was then among the most brilliant writers of *The Times* newspaper, prophesying unlimited power and happiness from the victorious march of intellect; the other expressing far less confidence in the capacities of human reason, maintaining, with Newton, that it always had been, as it was and would be, but as a little child picking pebbles on the great sea's shore, and that for himself, the chief result of his knowledge was to show him how little he knew. My humble sympathies were all with him who expressed these latter views of the question. His name was William Makepeace Thackeray; and my humble sympathies are with him now, when, after thirty-five years of enthusiastic love among the Roses—thirty-five years of daily observation, anxious inquiry, careful culture—I come to communicate results.

I feel much as I felt when, travelling on the underground rail, I misunderstood directions, and, crossing the wrong bridge, found myself, after forty minutes' absence, at the station from which I started. I go back thirty-five years—nay, to a yet more distant period, for there is a tradition in my family that my love of the Rose began with babyhood, and that I made a clutch at an artificial specimen that adorned my nurse's cap (I can't say whether the Rose was a Monthly Rose, but I have a strong idea the nurse was), and tried to devour it, and so to die of a Rose, without the aromatic pain, and I recall the same unsatisfied craving for the Rose in its perfection which I feel to-day; and though since that distant date I have grown Roses by the thousand, and instituted Rose shows, and won silver cups by the score, and walked through miles of Roses as a judge, and written a book about Roses, I am here after all to confess that my knowledge as compared with my ignorance is as a penny squib to a comet, as an unfledged tom-tit to a flying eagle; that I have made mistakes innumerable; that I have planted too deep and too shallow, pruned too long and too short, too early and too late, manured too much and too little, exhibited flowers which were superannuated and flowers which had not arrived at rosehood; that I have succeeded where I expected to fail, and failed where I hoped to succeed.

The explanation is, that the Rose, like the only object of our admiration which excels her in beauty, that Flora, like the rest of the fair sex, is delightfully mysterious and difficult to understand. From the variableness of our climate, from differences of soil, from delicacy of constitution, lovely Roses, like lovely ladies, are by no means easy of cultivation. In both cases you may be too attentive, and then the objects of your affection exalt themselves unduly, or, as we gardeners term it, "run to leaf." On the other hand, if you have been neglectful or indifferent, when you go to gather Roses you will find thorns. You must be devoted, but not too demonstrative—hopeful, but not presumptuous; and then, when your loyalty and love are proved, you may win the smile of beauty; even then uncertain and capricious, coming sometimes when we least expect it, and suddenly changing into a frown without a glimpse of explanation. Ah, my brothers, don't you remember how graciously and beautifully that Marie Baumann came out on the eve of the show, when you had given up hope, and how on the contrary, that Marie Finger (will anyone inform me whether Marry Finger means the third of the left hand?) on whom we relied so confidently, shut herself up, and remained motionless, as though in a swoon, despite every effort which was made to rouse her by blowing into her face and putting her feet in hot water?

But you will begin to murmur internally, "Surely this man is not come all the way to Sheffield to tell us that he knows nothing," if not to express your remonstrance, as when the blue ox of Artemus Ward rubbed some of his paint off against the central pole of the exhibition tent, and the spectators openly declared that "that sort of thing would not go down in their enlightened district." I hear you say, "Let us have the results of your experience, however small they may be;" as when an Oxford examiner, being told by an undergraduate who had failed dismally, that he had not been questioned upon the subjects which he knew the best, tore off a tiny scrap from the paper before him, and handed it to the plaintiff, saying, "Be so good as to write what you know on that."

Gladly and unreservedly I offer you the results of my experience with regard to the cultivation of the Rose. In the first place, as I

have already intimated, your heart must be in your enterprise. There is a good deal of "more verbiage"—frothy effervescence, humbug—in some of those gushing expressions of delight and admiration which we hear so often. "Oh, Canon Hole, what a heavenly duck of a Rose!" "Well, it's not quite in its best form as you see it there." "No; but isn't it too awfully jollily not quite?" Misled on one occasion by these professions of adoration, I presented a lady with a lovely Rose, and not long after, when she became intense upon some other topic, she began to pick off the petals! I stood astounded, like Launcelot when

the Queen
 Brake from the vast oriel-embowering Vine
 Leaf after leaf, and tore, and cast them off,
 Till all the place whereon she stood was green;

and then I remembered that I had business in another direction, and I went to it a sadder and a wiser man.

Then there are not a few professed admirers of Roses who only want them to show, or to cut, or to make their neighbours jealous. They have no true appreciation of the flower as a thing of beauty and a joy for ever, but regard it as ornamental furniture, and "the sort of thing one likes to have, you know." They come into your garden, and you show them some specimen of perfect loveliness, and they turn away, saying disdainfully, "We have heaps of those," as if they were coals or Potatoes; or, should it happen to be something which they do not possess, they condescend to take a note of the name, and they seem to think that they are conferring a great honour, not only upon you, but upon the whole vegetable kingdom, when they make the announcement, "We must have that."

Supposing the love to be sincere and the intentions hearty, what next? Pure air. And with a most unaffected sorrowful sympathy I speak those words, because to hundreds who love the Rose as well as I do they mean, No hope. Every year, and many and many a time in that year, "when the bloom is on the Rye" and on the Rose, I wish from my heart, as I wander in my peaceful pleasant garden, that my brothers—born and bred some of them 'mid gardens and green fields, but now toiling in dusky lane and wrangling mart, and having only caged birds and window plants to remind them of the past—could share my happiness. I have seen good Roses, it is true, which were grown within three miles and a half of St. Paul's Cathedral, and were exhibited at the first Crystal Palace Rose Show by the grower, my friend Mr. Shirley Hibberd. But the disappointments are so many, and the successes so few, that I should say to all persons proposing to grow Roses within six miles of a smoky manufacturing town or city, as *Punch* said to all persons about to marry—"Don't."

This pure air must nimbly and sweetly recommend itself to the Rose, but must not visit her cheek too roughly. Roses must have shelter, but not shade—free trade in sunshine, but protection from storms. They should have a screen of shrubs or of walls, but it must not be placed too near it. They dislike wind; and as all things else which are fresh and clean, from a fair reputation to a leg of mutton, they must not be blown upon. Let your Rose trees have all the sun (it is not much) which can be had in this cloudy clime.

As to soil, I have seen Roses growing, and have grown them, in all kinds of earth, from a heavy moist red clay to a light marly loam—in everything except gravel. If you have not a good soil naturally you must have it artificially; if it's too heavy make it light with lime, ashes, burnt earth; if it's weak strengthen it with turf, leaf mould, &c. Unbounded nonsense is emitted concerning soil. If Roses were good to eat we should have no more of it; but, as it is, you will hear persons who grow delicious Asparagus, the mealiest of Potatoes, and the biggest of Strawberries, maintaining that it is simply impossible to grow Roses in such a soil as theirs. The best soil which I have ever possessed was a rich old pasture broken up some six years ago. It was "double dug," and, having been well manured and manipulated ever since it is now most friable, mellow, and nutritious—good enough for pot Roses without any addition except the crocks for drainage.

What form of Rose tree shall we grow? Our fathers were in ecstasies when Mr. Lee of Hammersmith, and Mr. Rivers of Sawbridgeworth, introduced from Belgium (I think) the tall standards, and they bought them at a guinea apiece. Their children denounce them as mops and broomsticks—unnatural, and therefore unsightly; they are gradually disappearing, but a few old fogies, including yours sincerely, will plant a few standard Briars each year, and bud them in some quiet corner, because when there is a genial frostless May—a phenomenon which occurs in this country about twice in a long lifetime—those buds will produce the loveliest Roses which the rosarian can hope to see. With us (the fogies) they will perish, until—like single Dahlias, stage coaches, short waists, and cracked china—they are reproduced by Fashion as delectable novelties, and Vox Populi shouts, "Bravo! Beautiful!"

The bush is beyond a doubt the prettiest form in which we can grow the Rose, and this we obtain by grafting, or budding, or by striking cuttings from the parent plant. You have all the beauty of flower, foliage, and form under your eye, with this additional and supreme advantage over the standard tree, that, when you have placed a thick blanket—that is a good covering of straw manure, over your sleeping beauties towards the end of November—you may go to bed with the thermometer at zero and dream of Rose shows. A bed of these dwarf Roses, with the long laterals pegged down one year and blooming from laterals of their own the next, is one of the most charming sights in a garden. The bed should be round or

oval, raised in the centre, and with a large surrounding of well-kept weedless grass.

On what foundations shall we build? This depends much upon the soil. Make experiment. Procure Rose trees on the Briar, on the Manetti, and on their own roots, from the nurseries, and also Briar and Manetti stocks for budding in due season. Try your hand at striking also, and note results. In my own case the foreigner (it takes its name from Signor Manetti, who raised it from seed at Monza, gave it to Signor Crivelli of Como, and he sent it to my beloved friend—the beloved friend of all rosarians—Thomas Rivers of Sawbridgeworth, about the year 1833), the Manetti in my strong soil is worthless; the indigenous Briar, the English Dog Rose, is always a success. Nevertheless, I am more and more inclined by my experience to the belief that the favourite Rose tree of the future will be the Rose tree on its own roots. Meanwhile give me the Briar, whether it be grown from seed, struck from cuttings, or taken from the hedgerow or the wood.

What sorts, what varieties of Roses shall we grow? All sorts. Single and double, large and small; and in all forms—trailing along banks or towering on walls; making fountains, arches, and aisles; glimmering in plantations like "stars which in earth's firmament do shine;" rising from beds of shrubs, or circling them, as we saw the old China Rose the other day in the gardens of the Crystal Palace. He is no true rosarian who does not love all the Roses, and some of you may have read the public and indignant protest which I have made against an accusation which has been brought against us, that because we believe those Roses which you have seen to-day to be of all the most beautiful we are indifferent as to the other varieties; and it has been suggested, that because the National Rose Society proposes to publish a catalogue of Roses most suitable for exhibition, it may be necessary to establish a rival institution to watch over the interests of Roses for the garden only. I think—and it is such a happy thought as even Burnand himself never excogitated—that I know more rosarians and more of the rosarian mind than any other living man, and what I know most surely is this—that he who loves one Rose loves them all. Only the other day when I had left in my garden some of the loveliest Roses I ever grew, and was on my way to the station that I might adjudicate next day at the Crystal Palace aforesaid, I surprised a servant who was with me by stopping my dog-eart to gaze at a garland of Dog Roses drooping down the roadside hedge, and I believe that most of my brethren would have been as charmed as I was. Where is the exhibitor of Roses who does not grow Roses which are not available for exhibition? Name the writer on Roses who writes about show Roses only. Thomas Rivers gives us half a dozen pages in his "Rose Amateur's Guide" as to the exhibition of Roses in pots. William Paul, in "The Rose Garden," the same quantity on cut Roses for show, the remainder of the three hundred pages being devoted to garden Roses. Shirley Hibberd, in the "Amateur's Rose Book," gives a similar space to the subject of exhibition; and even he who wrote specially upon it, "How to Show the Rose," occupies not less than two-thirds of his book in discouraging upon the garden Rose.

In fact, and *in fine*, it seems to me (though I must whisper this quite *sub rosa*) that some of our friends—who from soil, situation, or want of zeal do not grow the most perfect Roses in their most perfect form—are at times a little invidious ("we are the sons of women, Master Page"), and that when they declaim against our "huge, fat, overgrown Roses, which anybody can have who will pluck off all the buds but one, and put on tons of manure;" and when they go into ecstasies about "the darling old Cabbage, and the exquisite York-and-Lancaster, and the dear old Tuscan, and the rich velvety Damask, and the little gem Rose de Meaux;"—this in most cases means to me, "You won't find a Rose in my garden which anyone would look at at a Rose show." It has the same significance as when short girls call long girls gawky maypoles, or as when gentlemen who are not at their ease on horseback disparage the pleasures of the chase. Give me the sight that is clear enough, and the heart large enough, to see and to admire beauty wherever and in whatever form it is found. I don't believe in musicians who chatter when others sing or play. I condemn the critic who gloats upon a flaw (just as that clumsy rider of whom I spoke will go a mile out of his way to find a weak place in a fence), who, if he praises, nullifies his praise. "Ah, yes, she's pretty, but, my dear fellow, she has the fist of a pugilist;" "bats nicely, but a mere dummy in the field;" "fair at feathers, but a muff at fur" (this I once heard from a third-rate shot of one of the best gunners of the day who had missed an invisible rabbit); "undoubtedly a nice little horse, but I hope you have not given much for him, for those hocks will never carry your weight."

I am constrained to confess that H.M. the Queen of Flowers is not refined in the matter of diet. She is a gross feeder, and when I think of the quality and the quantity of her favourite food I recall a passage in the letters of Charles Kirkpatrick Sharpe—"I met Mrs. Siddons at dinner just before the death of her spouse. It was at Walter Scott's, and you cannot imagine how it annoyed me to behold Belvidera guzzle boiled beef and mustard, swill porter, take huge pinches of snuff, and laugh till she made the whole room shake again." So does the Prima Donna of our stage; so does the Rose rejoice in strong sustenance, solid and fluid, with occasional pinches of tobacco powder and lac sulphur; but, as with Mrs. Siddons, they who had dined with her forgot the beef, and the beer, and "the pungent grains of titillating dust" when she appeared in all her power

as an artist, so when we see the Rose in her beauty we forget the midden and the tank. I go further than this in my devotion to the ladye of my love, and her likes are mine also. However unsightly to the eye or unsavoury to the nose, they seem to say, like the Earth in the Persian fable, "I am not the Rose; but cherish me, for we have dwelt together;" and they do not appeal in vain.

Ever since I lost my heart to the Rose I have been trying to discover the esculent which she most prizes, and at this present time her menu in my garden consists of eight different kinds of (if I may be allowed the expression) manure. These were applied some weeks ago, so that they have been well washed in by the rains, and in every case part of the bed was left without any addition, so that a comparison of results could readily be made. These confections are:—1 cwt. of Peruvian guano; 1 cwt. of pure dissolved bones; 1 cwt. of these two in combination, $\frac{1}{2}$ cwt. of each; 1 cwt. fine bone-dust; 1 cwt. ammonia phosphate; 1 cwt. mineral phosphate; a small bag of Clay's fertiliser; an unmeasured quantity of liquid manure from a farmyard tank.

Three of these have signalled themselves by a special success—the farmyard liquor, the Peruvian guano, and Clay's fertiliser. Pure dissolved bones is second after an interval, closely followed by mineral phosphate. Ammonia phosphate a bad fourth. The rest nowhere. I was prepared for the success of Clay's fertiliser, having seen a grand collection of standard Rose trees in pots at the April Show of the Royal Horticultural Society at Kensington, grown by Messrs. Veitch of Chelsea, and assisted by the reverend—I beg pardon—assisted by the tonic aforesaid. I do not, of course, regard this report as final, and shall note carefully, *pro bono publico*, the future influence of my application; nor must I forget to remind our younger brethren of other victuals which are wholesome for the Rose, and which they will find in the sheep-fold, in the hen-roost, and the dovecote. Malt-dust, the sweepings of the kilns, or better still, but costlier of course, malt-culms, are also nutritious food. Mr. Rivers's prescription of malt dust and contributions from the stable, mixed and fermented with liquid manure, is probably the most powerful stimulant which can be given; and I have recorded how, many years ago, I took off my coat and barrowed a large heap of it to a lot of budded standard Rose trees, just before a very heavy thunderstorm, and how, some weeks afterwards, this adroit manoeuvre in manures achieved for me the highest honours of the year—the first prize for forty-eight Roses at our National Show in London. But that victory annihilated the army who won it; not one of these soldiers ever fought again.

What is the main result of my long and varied experience in this matter? It is that I find myself, as upon the Metropolitan Railway, at the place from whence I came. The system which I followed thirty years ago I propose to follow so long as I am attached to this machine, and have the happiness of growing Roses—namely, to give them a liberal supply of farmyard manure about the third week in November, which will act both as food and clothing also: to dig this in early in March, and afterwards to apply occasionally liquid from the tank or some other of the refreshments to which I have referred. From bird or beast, bovine, ovine, porcine, equine, animal or vegetable, dust of bone or barley, I recommend all to your experiment, and leave to you the selection of the fittest.

But the young rosarian must not place his main reliance on these enrichments, beneficial, indispensable as they are—*O formose puer, nimium ne crede manure heap*—but must regard his soil and its cultivation as of primary and perpetual importance. Success in Rose culture can only be attained in accordance with the universal and eternal law—you must work to win. There must be draining and digging, hoeing and weeding, and a watchful loving patience, which defends the Rose from its enemies as well as surrounds it with friends. Hence the paucity of rosarians worthy of the title. There are numbers who gush at shows, take down names, give orders, plant Rose trees, but who never stoop to pull up a weed; and as for extracting the grub from his leafy bower and handling him somewhat severely between finger and thumb, why that is "simply disgusting!" These are the sort of people who think when they have signed a cheque that Roses should immediately spring up around them about the size of punch-bowls, and that thankful nightingales should sing in them night and day. Somehow this fireworks won't go off. "Oh, yer don't want to go into business, don't yer?" said an angry father to his lazy and loutish son; "Yer want an appointment in the Post Office, do yer? Post Office indeed! Why all you're fit for is to stand outside with your tongue out for people to wet their stamps against!" He who would grow Roses must not be afraid of dirtying his fingers—of resembling that clergyman of whom Sidney Smith said, that he "seemed to have a good deal of his glebe on his own hands;" or of a likeness to Martin Burney, to whom Charles Lamb remarked over a rubber, "Oh, Martin, Martin, if dirt were trumps what a hand you'd have!"

Where shall we buy our Rose trees? From any extensive Rose nursery which is nearest to you and has a soil most like your own, or from any of those professional rosarians who have shown you to-day what the Rose can be. I say can be, because you must not expect to achieve perfection at once, and your first flowers may perhaps disappoint you. Only be not discouraged; work at your model bravely, and you shall reproduce it.

And I advise amateurs to visit some of the renowned homes of the Rose. They will find a far more genial welcome than the mere com-

mercial spirit can give to a customer, because the hearts of our Rose merchants, whose friendship I have enjoyed for so many happy years, is with the Rose; and they will have men as pupils, and please themselves more completely as purchasers, than by any amount of reading or correspondence.

And, on behalf of these visitors, may I express the hope that my professional brothers will take into consideration whether, in addition to their standard and dwarf Rose trees, they might not exhibit the Queen of Flowers in some other form of beauty—showing us, for example, the best varieties of climbing and pillar Roses, Roses for a shrubbery, Roses for beds, uniform or in contrast, Roses for edging, Roses for bouquets, &c.

But I forget that this is the overture, not the opera, and I hear a bugle-call from conscience, "Let the canon cease firing."

It only remains for me, as President of the National Rose Society, to thank you heartily for the pleasant reception which you have given to our brotherhood to-day, and to solicit those who sympathise with us in our desire to extend the love and successful culture of Roses, and therewith, as many who hear me can testify, the happiness of human life, "the purest of human pleasures," to ask those who are inclined to help us to signify their wish to me or to our Secretaries, that their names may be enrolled upon our lists.



THE PELARGONIUM SOCIETY will, by kind permission of the Royal Horticultural Society, have a "field day" in the gardens at Chiswick on August 3rd. The arrangements will comprise the annual general meeting, a critical inspection of Pelargoniums under trial, and a luncheon in the vinery. Members of the Pelargonium Society are alone admissible, but persons wishing to participate may enrol themselves as members by application to the Hon. Sec., Mr. Shirley Hibberd, 15, Brownswood Park, N.

— THE HEAT IN LONDON has recently been very intense; 95° in the shade were last Friday registered by the Meteorological Department of the Board of Trade, although in some parts of the metropolis the extraordinary reading of 98° was recorded. On Tuesday the 5th inst., when the heat was broken up by a violent thunderstorm, the shade temperature was 92°. That had been exceeded only four times within twenty-three years. On the 16th June, 1858, the record was 94°; July 22nd, 1868, 96°; July 17th, 1876, 94°; and August 14th, 1876, 93°. Assuming last Friday's reading of 98° to be correct, it was the hottest day which has been experienced in London for nearly a quarter of a century. New buildings in progress were covered with awning to enable the men to continue their work; and fans have been employed nearly as freely by the male as the female population. Vegetation is exhausted, and many forest trees are flagging and casting their leaves.

— INTERNATIONAL HORTICULTURAL EXHIBITION. — We have received the following letter from Mr. Bruce Findlay pertaining to the Jubilee Festival of the Manchester Royal Botanical Gardens:—"The above Exhibition will be held in the Royal Botanical Gardens, Manchester, on the 24th of August and three following days. The Exhibition will be on a large scale, and 4 acres of additional land have been taken for the purpose. The total cost is estimated at £4000, and the Committee hope to raise this amount in subscriptions, so that the receipts at the gates may go towards the erection of the new glass so urgently needed in the gardens, thus leaving a permanent monument of the Jubilee year, from which it is hoped that visitors may derive pleasure and profit for many years. Nearly £3000 is subscribed, and by making this appeal in behalf of an institution which has done good work in the past, the Committee hope to obtain the additional sum required. A banquet will be held in the Manchester Town Hall on the evening of 24th August. Subscribers of £10 and upwards

will be entitled to one banquet ticket and four admission tickets for the opening day; subscribers of £5 will be entitled to four admission tickets for the opening day." Mr. Findlay will send forms of subscription to those who are desirous of contributing to the Exhibition fund.

— MR. RAITT writes to us as follows under date July 12th on STRAWBERRIES IN SCOTLAND:—"This is a disastrous year in our small fruit line. Half the acreage here in Strawberries is destroyed by frost and caterpillars, the other half only a third to half a crop—a loss of £6000 to £8000 to this parish alone. The caterpillar on Strawberries has not (except last year) been noticed before. I am sending full-grown specimens to an entomologist to have them identified. Many acres of plants are totally destroyed. The lowest temperature registered on the 8th of June was 10° below freezing, on July 1st 6° below, the mercury being at freezing point half the nights between those dates. Beech hedges are quite browned and the injury great."

— "J. G." sends the following upon POLYGONUM CUSPIDATUM—"I observed this species growing most luxuriantly in a small nursery at Wailey a few days ago, and was induced to measure the height and size of the branches or flowering stems, the tallest of which was 11 feet in height and 4 inches in circumference. How very little this fine-growing plant is known! It is admirable for filling up blanks for the summer, and its beauty as a flowering plant is not to be despised in the autumn."

— MESSRS. NANTZ & NEUNER, 192, Fourth Avenue, near Walnut Street, Louisville, Kentucky, write to us as follows relative to the NEW DOUBLE WHITE BOUVARDIA ALFRED NEUNER:—"As some doubt appears to exist with regard to the agency in Great Britain for our new double white Bouvardia Alf. Neuner, we beg you will be good enough to announce that we have appointed Messrs. Jas. Carter & Co., of 237 and 238, High Holborn, to be agents for this plant in Great Britain."

— RELATIVE TO CUCUMBERS IN AFRICA a daily paper publishes the following—"The town of Sfax, which has lately been bombarded by the French, is, or was until recently, an exceedingly favourable specimen of a town in North Africa. It seems to have derived its name from one of the vegetable products for which it is most celebrated—that is to say, the Cucumber, which in the Arab language is called Sfakou. In the culture of this plant and of the Melon the Sfaxians take great delight, and the soil of the place is evidently most favourable for their growth. Besides these, fruits and vegetables of almost all kinds are grown in immense abundance in the great gardens which surround the town on every side. It is here in these gardens, amidst groves of Olives, Palm trees, and Orange trees, that the townsfolk retire in the heat of the summer, taking refuge in the *bordjs* or square villas built in the middle of each garden plot, and surrounded by a luxuriant growth of Jasmine, possessing a peculiarly sweet and powerful fragrance."

— A CORRESPONDENT sends us a note on the USE OF SALT IN GARDENS, to the effect that near an Asparagus bed, which has been salted for a number of years, and some of the soil from which has occasionally been spread on the land adjoining, the few rows of Onions on one side and Cauliflowers on the other have withstood the drought much better than the rows further from the bed where the ground has not been salted. There is no doubt that the judicious use of common salt in gardens where the soil is of a dry nature and the rainfall slight, is of considerable advantage in seasons like the present. We have used salt for a number of years, and it has proved of great value when the summers have been hot and dry.

— VICK'S Illustrated Magazine contains the following note upon a plant that is scarcely known in English gardens—"Any

of our young friends who have not tried a plant of the HONEY BELL, OR MAHERNIA ODORATA, may find it a charming little pet. The foliage is delicate and finely cut, the plant becomes a foot or two in height, branches freely, and bears a great profusion of little nodding yellow flowers of the sweetest perfume. It is almost continually in bloom, and is an excellent plant for the window in winter. It is of the easiest culture, either in the greenhouse or window garden, in a light and moderately rich soil. The name of this plant is an evidence of the difficulty botanists sometimes meet with in naming a newly discovered plant. A genus of plants to which this one is very closely related had been named Hermannia, after a noted German botanist, and for this later-found genus the name Hermannia was transposed into Mahernia, thus still honouring Herr Hermann while indicating botanical relationship."

MESSRS. C. LEE & SONS' ARBORETUM.

A FEW minutes' walk from Isleworth station, on the Hounslow branch of the South-Western Railway, are situated three of Messrs. C. Lee & Sons' nurseries—namely, one where softwooded plants are chiefly grown, one where ornamental Coniferae, such as Retinosporas, Biotas, &c., are largely propagated, and one known as the arboretum, which contains an extensive collection of trees and shrubs. All are well worth a visit, but it is concerning the last-named that we submit the following brief notes, which, however, can convey but a very imperfect idea of the diverse and beautiful forms represented. The variations from well-known types of trees and shrubs may be considered as ranking under three heads—the variegated, the weeping, and the cut-leaved forms. There is scarcely one of the common trees or shrubs that has not varieties showing some of these characters, in many instances so developed as to render them attractive in the highest degree; others being extremely graceful in habit, while some are so grotesque or peculiar as to merit remark only as curiosities. It is amongst the deciduous section of tree life that these variations are most striking, and it is surprising what a number of forms have been obtained by some men who have specially devoted themselves to the work. This is particularly notable respecting the gold and silver variegated forms, one successful raiser of which was accustomed to jokingly inform inquirers that he painted the seeds white or yellow according to the kind of variegation he required. Some strange, but not improbable, accounts have also been related about "sympathy" amongst plants—that is, inducing variegation in a plant by placing it near or in contact with one already marked by the desired character. However, it is unnecessary now to enter into a discussion of the causes. In the Isleworth arboretum we find some of the best results, which will be referred to in the course of the following notes.

OAKS.—These are very strongly represented, and though the period of our visit was somewhat too early in the season to observe them all in their best condition, yet many beautiful forms had their foliage well developed. One that especially deserves notice is the Golden Oak, *Quercus concordia*, in its way one of the finest in the genus. Among other trees it is most effective, the clear bright yellow hue of the leaves contrasting beautifully with dark evergreens. Few large specimens are seen; indeed it is in comparatively few gardens the tree is represented at all—a fact that is greatly to be regretted. Another distinct and effective Oak is *Q. rubicunda*, which has handsome reddish-purple leaves, very dark. It is a fine companion for the preceding or other light-coloured forms. *Q. purpurascens* is also a purple-leaved variety, not quite so bright as the former, but still pleasing and useful. Among the variegated forms *Q. albo-marmorata*, *Q. argentea*, and *Q. fastigiata variegata* are especially noteworthy, and to these may be added the variegated Turkey Oak, which is perhaps unsurpassed in the clearness of the variegation and the distinctness of the contrast between the bright green centre and white margin of the leaves. Of the cut-leaved forms *Q. filicifolia*, *Q. heterophylla dissecta*, and *Q. pectinata* are remarkable, while as a variety with uncommonly large leaves *Q. americana macrophylla* is worthy of notice. Pendulous or weeping forms are also represented, but they are comparatively unattractive. Dozens of other more or less distinct and pretty varieties are grown, but cannot be now referred to.

MAPLES.—One of the finest of these at the time of our visit was a form which had been raised in the nursery, and is named *Acer Webbianum*, after the manager of this department, Mr. Webb.

It is a very distinct and extremely handsome form, with broad leaves beautifully mottled, splashed, and streaked with clear white. The variegation is so strongly marked that the value and effectiveness of the tree can scarcely be overrated. Another very promising Maple which has also originated at Isleworth is at present unnamed. In this the petioles are bright red, and the blade of the leaf is streaked with pink, white, and green, the first-named tint being particularly bright. *Acer Schwedleri* has its young growths bright red, and when the tree has attained a good size it is most attractive; either planted singly or amongst others it

is very ornamental. *Acer elegantissimum*, which, like many others, is a variety of *A. pseudo-platanus*, deserves a high place in the ranks of thoroughly useful and handsome Maples. The body colour of the leaves is a deep rich green, and the variegation a clear bright yellow. This does not appear to be much known at present, but it is undoubtedly destined to attract popular favour, and may be justly described as one of the best in commerce. *Acer Reitembachii* is a magnificent variety when in good condition, its large rich purple glossy leaves being uncommonly showy. *Acer purpureum* is another purple-leaved form, but scarcely rival-



Fig. 12.—CYTISUS PURPUREUS MAJOR.

ling the former. Of the numerous other Maples grown the following deserve brief mention—*Acer Leopoldi*, variegated with white and pink; *A. platanoides variegatum*, very fine, white and yellow; *A. purpureum variegatum*, purple and yellow, handsome; *A. laevigatum*, red stems and petioles; *A. platanoides dissectum*, leaves elegantly cut; *A. laciniatum*, also with cut leaves; *A. platanoides cucullatum*, peculiar hooded leaves; and *A. villosum*, which has extremely large green leaves—indeed it is scarcely excelled among Maples in the size of the leaves.

Almost all the common genera of trees and shrubs are similarly represented by beautiful forms that are only too little known. Elms of most diverse characters and habit are seen, also Chestnuts, Limes, Ashes, Walnuts, Beeches, Birches, Cherries, Pears,

Thorns, Elders, Filberts, Alders, Poplars, and Willows, with many others, variegated, weeping, and strangely formed—a host of notabilities, the description of which would far exceed our purpose at present. Though it is invidious to select one for special comment from amongst so many that are good, these notes may be fittingly concluded by a reference to a flowering shrub that was certainly unsurpassed in the whole collection at the time of our visit, and which well merits a place in every garden where shrubs are valued. This is

CYTISUS PURPUREUS MAJOR, of which the woodcut (fig. 12) represents a spray, well showing the chief characters as regards the disposition of the flowers on the branches, but which can convey no idea of the tree's greatest attraction, the rich bright purple hue

of the blooms. The specimens at Isleworth are grafted on clean stems 4 to 5 feet high, and have fine close heads 3 or 4 feet in diameter, of hemispherical form. The flowers are produced in great profusion; indeed so numerous were they that the foliage was scarcely visible on some of the standards, and the pleasing purple tint already referred to is especially noticeable on a bright sunny day. The plant is unquestionably a really useful one, and deserves to be much more generally known.—VISITOR.

HITCHIN ROSE SHOW.

THE first Exhibition of the Hitchin Rose Society was held on Wednesday last under the favourable auspices of fine weather and fair Roses. The Society originated through the endeavours of the Rev. F. H. Gall, the Honorary Secretary. At present the scope of the Rose Society is limited to the locality of twenty miles from Hitchin; and although Hertfordshire includes the gardens of several of the principal cultivators and exhibitors of the Rose, these, with the exception of Messrs. Francis of Hertford, who are chiefly occupiers of light land, are not within the radius. The hot chalky soil of the district is, perhaps, as unsuitable as any in the latitude for the growth of exhibition Roses, and consequently the drift or boulder clays of the neighbouring counties produced the blooms of at least four of the chief exhibitors, and it may be a question whether chalk and gravel-grown Roses should not in future be made the subject of a separate class at Hitchin.

In the open class for twenty-four varieties Messrs. E. P. Francis and Co., of the Hertford Nurseries, were first with fine-coloured and regular blooms, including Madame Victor Verdier, Antoine Ducher, and Elie Morel, the latter two being exceptionally good blooms of uncertain varieties. Messrs. Francis had also good flowers of A. K. Williams, Pierre Notting, Marguerite Brassac, Reynolds Hole, and Marguerite Jamain, a light Rose of the type of Marguerite de St. Amand, but a little thin. The Rev. W. H. Jackson of Stagsden Rectory, Bedford, was second with several very fine blooms, but his stand was less regular than the last; his best Roses were Pierre Notting (very large, and which obtained the silver medal of the National Rose Society as the best H.P. in the Show), Madame Gabriel Luiset, an excellent light Rose, and almost constant this season as a good show variety; Baronne de Bonstetten, Jean Liabaud, Marie Rady, Madame Victor Verdier, and Marguerite de St. Amand. Mr. Laxton of Bedford was third, having A. K. Williams, Marie Rady, Souvenir d'Elise, Madame Prosper Langier, Comtesse d'Oxford, and Catherine Mermet amongst his best blooms.

In the amateurs' class for twelve varieties the cup (not the conventional two-handled useless piece of metal-chasing of wafer constitution, but a good, substantial, plain English silver pint) fell to the lot of the Rev. E. L. Fellowes of Wimpole Rectory, Royston, who had the best and prettiest stand in the Exhibition, and well sustained the reputation of the Wimpole Roses. Horace Vernet, Paul Verdier, Auguste Rigotard, Senateur Vasse, Reynolds Hole, Marie Van Houtte, Le Havre, La France, Marguerite Brassac, Sir Garnet Wolseley, and Marie Rady were all good alike, and Comtesse de Serenye as well as could be expected. Mr. Jackson was second, and the Rev. W. F. Jennyns, Knebworth Rectory, third.

Teas and Noisettes were particularly good, and in the open class for twelve varieties Mr. Fellowes was first, his best blooms being Comtesse de Nadaillac, on this occasion in her deepest colours, Triomphe de Rennes, Madame Caroline Kuster, Alba Rosea, and Catherine Mermet. Mr. Laxton was second, having good flowers of Madame Barillet Deschamps, pure white; Triomphe de Rennes, Devoniensis, and Catherine Mermet amongst his best blooms.

In the amateurs' class for nine Teas and Noisettes Mr. Fellowes, who was again first, had Anna Ollivier, Perle des Jardins, Marie Van Houtte, Amazone, promising for exhibition; Comtesse de Nadaillac, Souvenir de Madame Pernet, Jean Ducher, and Madame C. Kuster, all good. The Rev. W. H. Jackson was second, his fine bloom of Catherine Mermet being crowned with the bronze medal of the National Society as the best Tea or Noisette in the Exhibition. Mr. Jackson had also good flowers of William Allen Richardson, very distinct in colour, orange apricot, but thin; Maréchal Niel, Innocente Pirola, and Comtesse Riza du Parc. The minor classes were fairly well filled, but principally by locally-grown blooms from the chalk.

Mr. Gall is to be congratulated upon his quiet, inexpensive, and yet most successful management, and not a few will be disappointed if there be not another and a long continuation of such Rose shows at Hitchin.—T. LAXTON, Bedford.

SUMMER-SOWN ONIONS.

STRICTLY speaking, Mr. Luekhurst is correct in describing Onions that are sown in July as summer-sown, but he will not change the old time-honoured and well-understood designation of such Onions. Winter Onions they have been, I believe, from time immemorial, and winter Onions they will remain, the term being clearly distinctive from spring Onions and intelligible. Of far more importance is his experience of the Silver Queen Onion for sowing at this period of the year, for it is a fact that Onions are often wanted in the spring before they are ready. My

experience with the variety named is the same as Mr. Luekhurst's. The Queen sown in July is most valuable for early use. So is the old silver-skinned pickling Onion. Let Mr. Luekhurst try this with the Queen as I have done, and he will, perhaps, be astonished at the fine bulbs he will have. Either or both of these so-called small Onions ought to be sown in addition to, not instead of, the ordinary Tripoli Onions any time before the end of the present month, and an early and prolonged supply of fresh Onions will be had during the spring and summer, until the regular spring-sown crop is ready for pulling.—J. D. E.

THE NATIONAL CARNATION AND PICOTEE SOCIETY.—JULY 19TH.

THE Exhibition of the southern section of this Society was held at South Kensington on Tuesday last, and proved the largest that has been held since the Society commenced its new series of exhibitions. The flowers were finer than could have been expected in such hot weather, whilst in Scels and Fancies the numbers staged far exceeded all previous exhibitions. The new flowers were remarkable, and the raisers deserve high commendation. Annexed are a few notes of the best flowers shown.

In the first-prize collection of twenty-four Carnations Mr. E. S. Dodwell had fine examples of the following:—Fred, S.B., a very broad-petalled variety with bold markings, the same variety winning the prize as the premier Carnation in Mr. Douglas's stand of twelve. Other scarlet bizzarres were James McIntosh, a large high-coloured flower with a good petal; George, S.B., with a petal similar in shape to Admiral Curzon; Arthur Medhurst, S.B., excellent; Seedling, S.B., a full flower, with large petals full of colour. In crimson bizzarres Master Fred Hewitt was fine, and Shirley Hibberd, too, was good; Mr. Gorton, with the finest petal in the stand, lacked colour; Harry Matthews, S.F., a large flower, was first-rate; Mrs. Matthews, R.F., a fine flower, won first prize as a seedling. This stand altogether was fine, lacking only in the purple flakes, which, owing to the heat, had gone off.

Mr. Douglas had fine flowers of Joseph Crossland, S.B., a seedling of Mr. Simonite's, a full bold flower with deep maroon stripes; Admiral Curzon, Robt. Lord, and Dreadnought, S.B.'s, were all fine; Wm. Spoor, S.B., a Newcastle variety, lacked purity in its white, in other respects it was a fine large flower. The purple flakes were quite a feature in this stand, and improved it very much; they consisted of Florence Nightingale, Earl of Stamford, and Jas. Douglas. Mr. Charles Turner had also some fine examples, his best flowers being John Burnett, S.B.; Mars, S.B.; Matador, a S.F. with large petal and very bold marking, winning first in class; they were, however, far past their best. Mr. J. Hines had a fine S.B. called Godbold; this was extra fine. Mr. Douglas's second-prize collection of twelve Carnations included the premier bloom, Fred, S.B., a seedling raised by Mr. Dodwell, an extra fine flower.

The Picotees were very fine, Mr. Douglas winning first for twenty-four with fine specimens. Amongst the best were Jessie, L.P.; Norfolk Beauty, H.P.; Mrs. H. Chancellor, H.P., winning the premier place as the best Picotee in the Show. Thomas William, L.R.P., was here very good, as also in the classes, and no doubt it is the best light red in cultivation; Clara Penson, L.P., fine and large; and Her Majesty, L.P., was also very fine. Mr. Charles Turner was second with handsome flowers of Mr. Payne, H.R.; Dr. Epps, H.R.; Thomas Jivens, L.R.; and Tinnie, H.P., a seedling raised by Mr. Dodwell. In the twelve Picotees Mr. Douglas was first, and Mr. Dodwell second. Mr. Douglas had Princess of Wales, H.R., handsome; Mary, L.P., was also extra fine. Mrs. Gorton, L.R., a seedling of Simonite's, was also shown fine here. In Mr. Dodwell's stand Marvel, H.P., was noteworthy; also Mary, which won first prize as a seedling. Minnie, L.P., raised by Mr. Lord, was in beautiful condition. The Judges were Messrs. Llewellyn, Thos. Moore, Rev. F. D. Horner, Hewitt, Simonite, Rudd, Lord, Kirtland, Turner, and Ball.—GEO. RUDD.

A list of the awards with the names of the principal varieties shown is appended, and the number of entries will convey some idea of the extent of the Exhibition. The blooms were arranged upon tables in the Council-room, some of the collections not in competition being placed in the corridor.

CARNATIONS.—Most of the classes were well filled and the quality good. The principal class was that for twenty-four blooms, not less than twelve distinct varieties. The premier prize was secured by E. S. Dodwell, Esq., 11, Chatham Terrace, Larkhall Rise, Clapham, with handsome blooms of John Ball, Master Fred, Fred, James McIntosh, James Cheetham, Mrs. Matthews, John Keet, Thomas Moore, George, Admiral Curzon, Mrs. Tomes, Arthur Medhurst, Harry Matthews, Squire Llewellyn, E. S. Dodwell, William Skirving, Mrs. Gorton, and Shirley Hibberd. Mr. J. Douglas, gardener to

F. Whitbourn, Esq., Loxford Hall, Ilford, was a very close second, the following varieties being especially fine—J. Douglas, Rifleman, Florence Nightingale, Joseph Crossland, Sportsman, Sarah Payne, John Keet, Lord Wilton, Sybil, Faleonbridge, Robert Lord, Clipper, J. D. Hextall, John Bayley, Earl of Stamford, Admiral Curzon, Wm. Spoor, J. Merryweather, Dreadnought, and several seedlings. Mr. C. Turner, The Royal Nursery, Slough, was a good third, having James Taylor, Mars, and Sporting Lass in good form. Mr. H. Hooper, Vine Nursery, Bath, was fourth; and Mr. J. Hines, 81, Bramford Road, Ipswich, fifth.

For twelve dissimilar blooms Mr. E. S. Dodwell was an excellent first with substantial blooms of Master Fred, Fred, Squire Penson, James McIntosh, Thomas Moore, Arthur Medhurst, Harrison Weir, Mrs. Tomes, Seedling 216, John Ball, George, and Squire Llewelyn. Mr. Douglas followed closely, staging good examples of Fred, Clipper, J. Douglas, Sybil, and John Keet. Mr. J. Matthews, Wandsworth Road, was third; Mr. J. Hines, fourth; Mr. J. Buxton, Manor Street, Clapham, fifth; and Mr. J. Duffield, gardener to H. K. Mayor, Esq., Winchmore Hill, sixth. There were seven entries in this class, the competition being generally good.

For six dissimilar blooms there were six entries. Mr. Arthur Medhurst, Clapham, was placed first with Dr. Cronin, John Bayley, Fred, Mrs. Gorton, and George, bright, clean, and of fair form. Mr. V. P. Healy followed with Othello, Stanley Hudson, John Buxton, G. F. Wilson, Titian, and Bayley Junior. James P. Sharp, Esq., Perry Barr, Birmingham, was third; E. H. Allen, Esq., St. John's, Putney Hill, fourth; and Master Harry Matthews fifth.

Single specimen blooms were very numerous, about 167 being staged in all the sections. *Scarlet Bizarres*.—Mr. C. Turner was first with George, Mr. J. Douglas second with Robert Lord and fifth with Dreadnought, Mr. E. S. Dodwell third with Arthur Medhurst and fourth with George. Forty-six entries. *Crimson Bizarres*.—Mr. J. Douglas was first with John Simonite, second with Crimson Banner, third with Lord Milton, and fifth with Lord Milton; Mr. E. S. Dodwell being fourth with Rifleman. Thirty-one entries. *Pink Bizarres*.—Mr. J. Douglas was first with Sarah Payne, third with a seedling, fourth and fifth with Albion's Pride. Mr. E. S. Dodwell was second with Sarah Payne. Thirty-three entries. *Purple Flakes*.—Mr. J. Douglas was first, second, and fifth with Florence Nightingale, Mr. C. Turner third with Lady Peel and fourth with Sporting Lass. Twelve entries. *Scarlet Flakes*.—Mr. C. Turner was first and second with Matador and a seedling; Mr. E. S. Dodwell was third with a seedling, Mr. J. Douglas fourth with Sportsman and fifth with John Bayley. Twenty-four entries. *Rose Flakes*.—Mr. J. Douglas was first with Sybil and third with John Keet, Mr. C. Turner second with John Keet and fifth with Jessica, Mr. E. S. Dodwell being fourth with James Merryweather. Twenty-one entries.

PICOTEES.—These also were abundant, bright, clean, and fresh. For twenty-four blooms, not less than twelve dissimilar varieties, Mr. J. Douglas was well to the fore with a pretty collection, including the following—Mrs. Payne, J. J. Bryant, Nymph, Brunette, Mrs. Gorton, Norfolk Beauty, Mrs. Bower, Princess of Wales, Ethel, Royal Visit, Jessie, Clara, Her Majesty, Clara Penson, Ann Lord, Mrs. Chandler, very fine, and a sport from Ethel, heavy-edged rose variety. Mr. C. Turner took the second place with fine examples of Mrs. Chancellor, Dr. Epps, Constance Heron, T. Jivens, Edith D'Ombra, J. Bolton, and Dr. Abercrombie. Mr. E. S. Dodwell was third, showing Jessie, Muriel, Zerlina, and Edith D'Ombra in fair condition. Mr. Hooper was fourth. These being the only collections staged.

For twelve dissimilar blooms Mr. J. Douglas secured chief honours with Clara Penson, Mrs. Chancellor, Brunette, Mrs. Payne, Mrs. Vivian, Jessie, Royal Visit, Violet Douglas, Princess of Wales, Mrs. Gorton, and Rosy Queen, all of fair quality. Mr. E. S. Dodwell followed, having Zerlina, Royal Visit, Dr. Epps, and Edith D'Ombra very fine. Messrs. J. Matthews, J. Hines, J. Buxton, and G. Duffield taking the remaining prizes in that order. There were seven entries.

For six dissimilar blooms Mr. Arthur Medhurst won the chief position with Zerlina, Edith D'Ombra, Mrs. Dodwell, Royal Visit, Lizzie Tomes, and Ann Lord. Mr. J. P. Sharp followed closely. Messrs. E. H. Allen, V. P. Healy, and H. Matthews being third, fourth, and fifth respectively among six exhibitors.

Single specimen Picotee blooms were well represented, 158 being staged. *Red, Heavy-edged*.—Mr. Brown was first with Emmeline, Mr. Douglas second with J. B. Bryant, Mr. C. Turner third with Picturata, Mr. J. Hines fourth with Wm. Summers, and Mr. E. S. Dodwell fifth with Brunette. Twenty-seven entries. *Red, Light-edged*.—Mr. J. Douglas was first, second, third, and fourth with Thomas Williams; Mr. C. Turner fifth with Rev. F. D. Horner. Fifteen entries. *Purple, Heavy-edged*.—Mr. C. Turner took all the prizes with Mrs. A. Chancellor, very fine. Twenty-eight entries. *Purple, Light-edged*.—Mr. J. Douglas was first with Miss Clara Penson, second with Her Majesty. Mr. E. S. Dodwell was third with Ann Lord and fourth with Minnie, Mr. C. Turner being fifth with Baroness Burdett Coutts. Twenty-eight entries. *Rose or Scarlet, Heavy-edged*.—Mr. C. Turner was first and second with Fanny Helen, and third with a seedling, Constance Heron; Mr. J. Hines fourth with Mrs. Allcroft, and Mr. J. P. Sharpe fifth with a seedling. Thirty-six entries. *Rose or Scarlet, Light-edged*.—Mr. Sharp first with Mrs. Allcroft, Mr. C. Turner second and third with Evelyn and fourth with Lucy, Mr. H. Hooper fifth with Beauty of Bath. Twelve entries. *Yellow Grounds*.—Mr. J. Douglas first with Prince of

Orange, second and fifth with Princess Beatrice. Mr. H. Hooper third and fourth with Countess of Pembroke. Twelve entries.

MISCELLANEOUS CLASSES.—For twenty-four blooms of selfs, fancies, or yellow-ground varieties, Mr. C. Turner was first with a beautiful stand of blooms representing the following varieties—Eurydice, Constance, Cremorne, Captain Dalgetty, Seedling, George, Arthur Medhurst, Duchess of Edinburgh, Mrs. Willis, Géant des Batailles, Titian, John Burnet, G. P. Hawtrey, Elegant, Jessie, and Rembrandt. Mr. J. Douglas was a good second, Mr. J. Matthews third, and Mr. H. Hooper fourth.

For twelve of the above types Mr. E. S. Dodwell was in the chief position with neat brightly coloured flowers. Messrs. A. Medhurst, Duffield; H. Catley, Bath; and John Abercrombie, Cheltenham, securing the remaining prizes.

For twelve yellow ground Picotees Mr. Douglas was adjudged the chief honours for neat blooms of Prince of Orange, Mrs. Coleman, Alice, Beatrice, Eleanor, and Lightning. Mr. H. Hooper was placed second, and Mr. H. Catley third.

In the class for twelve plants of distinct kinds, in pots not exceeding 8 inches in diameter, only two collections were staged, Mr. C. Turner securing the premier prize with handsome specimens bearing from four to seven flowers each. The Carnations were Rembrandt, Rifleman, John Burnet, George, and Jupiter. The Picotees were Mrs. Payne, Mrs. H. Chancellor, Constance Heron, Dr. Epps, Royal Visit, Clara Penson, Tinnie, Louisa, Dr. Abercrombie, and Lady Carrington. Mr. J. Douglas was second with a less even but good collection, comprising the following—Carnations: Seedling 423, James Taylor, William Spoor, William Carriek, Albion's Pride, John Bayley, and Satisfaction. Picotees: Royal Purple, Brunette, Mrs. Gibbons, and Mrs. Bowers.

In addition to the collections in competition the following were staged:—Messrs. J. Veitch & Son, Chelsea, contributed a handsome collection of border Carnations and Picotees, ten boxes being shown, each containing three dozen blooms, representing a large number of beautiful varieties. Some of the best were the following:—Carnations: Isaac Wilkinson, Campanini, Earl of Stamford, Mars, Rosina, a very pretty rose flake; Defiance, scarlet flake; Lord Chelmsford, rose flake. Selfs: Lothair, Black Knight, Chromatella, Fire-eater, Bride, Princess Alice, Elysian Beauty, very soft pink; Auctioneer, bright purple; Crimson Pet, very deep crimson; The Coroner, dark salmon; King of Yellows, fine yellow; and Daniel Dedworth, very bright purple. Picotees: Mrs. Raynor, heavy rose edge; Brunette, heavy crimson edge; Royal Visit, heavy rose edge; Edith D'Ombra, heavy rose edge; and Lothair, heavy crimson edge.

Messrs. Cranston's Nursery and Seed Company, Hereford, exhibited eleven boxes of Rose blooms in admirable condition—bright, fresh, and of excellent form and substance generally. A large number of varieties were represented, among them being the brightly coloured Hybrid Perpetual Mrs. Jowitt, which was accorded high honours last year. Messrs. H. Cannell & Sons, Swanley, Kent, exhibited four stands of Verbenas and three of Carnations and Picotees, comprising many fine varieties. The Verbenas were particularly bright, and attracted much attention.

REVIEW OF BOOK.

A Manual of Injurious Insects, with Methods of Prevention and Remedy for their Attacks to Food Crops, Forest Trees, and Fruit, and with Short Introduction to Entomology. By ELEANOR A. ORMEROD, F.M.S., &c. London: Sonnenschein and Allen, Paternoster Square. 1881.

WE have added a date to the title of the above, though in actual fact the volume bears no date, and we are sorry to perceive that the practice of publishing works undated is becoming very common. The press teems now-a-days with so many works which profess to be manuals, but which the student finds sadly wanting, that it is agreeable to get hold of a book so entitled which really is a handy guide to the subjects it discusses. Not unfrequently it has been said, and with truth, that the majority of our entomologists have rendered very little service to horticulture, they being too much absorbed either in forming collections or hunting up new species. This manual, the only work so far as we are aware which has appeared in England in which the subject is aptly treated in accordance with the title as above given, is from the pen of a lady. Henceforth our entomologists of the male sex will have to look after their laurels.

The book is suitably divided into three parts, the headings being "Food Crops," "Forest Trees," and "Fruit Crops," and the alphabetical arrangement is adopted throughout—that is, with application to the plants, not to their enemies—on the whole decidedly the best plan, although there are insects that range from plant to plant, and can scarcely be said to be restricted to any one species. No doubt some will ask, "Why was there not a fourth part, in which those insects might have been referred to that destroy or disfigure flowers in the garden, conservatory, or hothouse?" Certainly this is an important subject, but it is a very large one, and we incline to think Miss Ormerod has done

wisely in limiting her researches, at least for the present. We should, however, like to see added to any future edition of this "Manual" a few observations upon those insects which, by acting as foci to injurious species, deserve to be encouraged in our gardens.

The introduction to entomology is well executed considering its necessary brevity, and throughout the book the descriptions are clear and popular, woodcuts being introduced here and there which are on the whole well drawn though not all original. Much of the matter in the book commends it to the farmer as well as to the gardener; for a particular notice is given of the species infesting corn, the Hop, the Potato, Beans, Peas, Carrots, and Turnips. Miss Ormerod very wisely insists upon the axiom that "prevention is better than cure;" and of methods of prevention she says, "The most serviceable are based, not on applications when the crop or trees are undergoing attack, but rather on modes of cultivation and treatment which may diminish the amount of insect presence beforehand, by clearing away all points of harbourage and breeding places, as well as attacking the pest generally and on a broad scale at the points where the details of its habits show that it is most open to injury." The value—now insufficiently recognised—of gaslime is insisted upon, the authoress remarking that as a dressing for insect-infested land it has scarcely an equal, for it not only kills many pests, but by the chemical alterations it undergoes it eventually becomes an excellent manure.

Inquiry was recently made in this Journal concerning the best method of extirpating the wireworm. Miss Ormerod recommends deep trenching in gardens, and trapping also by burying pieces of Carrot or Potato; paraffin diluted with fifteen times its bulk of water and applied continuously has been advantageously used in the north. We notice, when writing upon the Gooseberry and its pests, Miss Ormerod, while admitting the virtues of hellebore as a destroyer of the sawfly caterpillar (more especially), considers the employment of it is dangerous, lest any portions of the powder should adhere to the berries. A dusting with the flour of sulphur, done when the bushes are damp from dew, she considers is quite as efficacious. Amongst the insects of the Gooseberry the caterpillar of the V-moth (*Halia wavararia*) might have been mentioned; it is rather common on the leaves some seasons. Also as frequenting the Currant, there should have been notice taken of that pith-miner, the larva of *Sesia tipuliformis*. An allied species, *S. myopæformis*, is not named amongst the feeders on the Apple and Pear; recently an instance was reported to this Journal of its occurrence upon the Apricot. There are sundry other omissions, particularly in the Lepidopterous order; but it is not to be expected that in a first edition of such a book anything approaching comprehensiveness could be attained. To the Vine, we think, a separate chapter ought hereafter to be given. There is only a passing notice of the Vine weevil (*Otiorynchus sulcatus*) under the heading of the Raspberry. Doubtless Miss Ormerod will be glad to receive from gardeners information as to how far they have tried or tested her preventive or remedial methods.

WIRRAL ROSE SHOW.

SATURDAY, JULY 16TH.

THE above Society held their Show in the Park grounds under much more favourable weather than last year, but the heat was excessive, and both in colour and freshness the blooms were far behind what we have seen staged on many previous occasions. The competition was not keen throughout the Exhibition; yet, taking all things into consideration, the Show was really a good one. That brilliant Rose Horace Vernet was staged in excellent condition, especially in the Hereford boxes, and was generally better in quality than any other variety in the Show.

In the class for seventy-two single blooms two collections were staged—namely, by Messrs. Cranston & Co. and Messrs. Davidson and Co., the former taking the lead with superior blooms, a few of the best being *Perle des Jardins*, Mrs. Laxton, Countess of Oxford, A. K. Williams, very bright and good; *Senateur Vaisse*, fine; *Niphetos*, Mdle. Marie Rady, Exposition de Brie, Marquise de Castellane in splendid condition; *Auguste Neumann*, Le Havre, Alfred Colomb, Horace Vernet, very brilliant; *Peach Blossom*, Souvenir de la Malmaison, very fine without being coarse; *La France*, and a large flower of *Etienne Levet*. Messrs. Davidson & Co. staged much smaller but very even blooms of Alfred Colomb, Jean Liabaud, Marie Baumann, Général Jacqueminot, Marie Finger, Duke of Edinburgh, bright; Lord Herbert, good; Xavier Olibo, Mons. E. Y. Teas, fine; Charles Crapelet, and Maurice Bernardin. The same exhibitors were the only competitors in the class for thirty-six triplets, and obtained the prizes in the same order as in the preceding class, Messrs. Cranston & Co. showing a good even lot, including good blooms of Mrs. Laxton, bright; Mdle. Eugénie Verdier, A. K. Williams, Sir Garnet Wolseley, bright and very fine; Madame Charles Wood, Madame

Lacharme, a very fair bloom; Capitaine Christy, large and good; Princess Mary of Cambridge, Edouard Morren, very good; Mdle. Bonnaire, Beauty of Waltham, *Perle des Jardins*, bright and of good size, Charles Lefebvre, good; Duke of Wellington, brilliant; François Michelin, large and fine but rather short of colour; and Marguerite de St. Amand. The blooms of Messrs. Davidson & Co. were considerably smaller, but in very fresh bloom.

In the class for thirty-six single blooms four lots were staged. Mr. T. Griffiths, Hereford, was placed first with fresh and fine blooms. Beauty of Waltham was a model of perfection and the finest of its kind in the Show; Ferdinand de Lesseps, Alfred Colomb, Marie Baumann, Sir Garnet Wolseley, Charles Darwin, Royal Standard, May Quennell, Madame Vidot, Baron Haussmann, and Lord Macaulay were all in fine condition. Mr. George Prince of Oxford was placed second with a fine stand containing excellent examples of Devienne Lamy, Camille Bernardin, Beauty of Waltham, Louis Van Houtte, Niphetos, Marie Guillot, Maréchal Niel, Jean Ducher, Madame Lambard, Rubens, Catherine Mermet, and Capitaine Christy. Messrs. J. Dickson & Sons, Newton Nurseries, Chester, followed closely, and secured third honours. Messrs. F. and A. Dickson & Sons, Chester, also staged a good even collection. In the class for eighteen varieties, three blooms of each, Mr. G. Prince of Oxford was again first, closely followed by Mr. T. Griffiths, Hereford. In the class for twelve blooms of any one Hybrid Perpetual Rose Messrs. Cranston and Co. were easily first with a brilliant box of Horace Vernet, Mr. G. Prince second with large blooms of Alfred Colomb but deficient in colour, and Messrs. F. and A. Dickson & Sons third with Marie Baumann, rather small but very bright. In this class there were five competitors. For twelve varieties, single blooms, not in commerce before 1878, Messrs. Cranston & Co. were first and Messrs. Davidson and Co. second. In the first-prize lot were staged Mons. Alfred Dumesnil, Jean Sisley, good; Madame Ducher, Mdle. Marie Verdier, Duke of Teck, Duchess of Westminster, Duchess of Connaught, Charles Darwin, and Countess of Rosebery.

For twelve Tea or Noisette Roses Mr. G. Prince, Messrs. Cranston and Co., and T. B. Hall, Esq., a local exhibitor, took the prizes in the order as named, Mr. Prince showing the finest Tea Rose in the Show—Comtesse de Nadaillac, full and good; Anna Ollivier, large and fine; Madame Caroline Kuster, Souvenir d'un Ami, Souvenir de Madame Pernet, good; Marie Guillot, Jean Ducher, brilliant; Maréchal Niel, and a good Souvenir d'Elise Vardon. Messrs. Cranston showed good examples of Catherine Mermet, Niphetos, Comtesse Riza du Pare, Souvenir de Paul Neyron, and Madame Hippolyte Jamain. The third collection contained similar varieties but smaller than the above.

In the classes open to all amateurs Mr. T. Jowitt obtained the premier award for thirty-six single blooms with one of the finest boxes in the Show, the stand scarcely containing a faulty bloom. A. K. Williams was of remarkable merit, and Dr. Andry, La Duchesse de Morny, Le Havre, *Senateur Vaisse*, Mons. Boncenne, Etienne Levet, Comtesse de Serenye, Belle Lyonnaise, Mary Pochin, and Mdle. Marie Cointet were large and in grand condition. D. L. Codrington, Esq., was placed second, the blooms being much inferior to the above. For twenty-four single blooms Miss Massey was well first with good blooms, the most noticeable being Marie Baumann, Baronne de Rothschild, Etienne Levet, Paul Jamain, Prince of Wales, and The Shah. C. J. Day, Esq., was a good second, showing fine blooms of Alba Rosea and Comtesse de Nadaillac; William Stubbs, Esq., being a close third, having a good bloom of Duchesse de Morny. T. Griffiths, Esq., Oxton, and the Rev. L. Garnett took the prizes as named in the class for twelve single blooms, the former showing La France, Capitaine Christy, Dr. Andry, and Mdle. Eugénie Verdier, rather small but fresh. T. B. Hall, Esq., was the only exhibitor in the class for twelve Teas or Noisettes, and staged a very creditable collection.

The remaining classes were open to the hundred of Wirral and to amateurs residing within ten miles of the Liverpool Exchange. In the class for twenty-four single blooms Mr. T. B. Hall was first with an excellent stand—Dupuy Jamain, Thomas Mills, Marquise de Castellane, Mdle. Marie Rady, La France, and Baronne de Rothschild being the principal blooms; the others being fresh and good. Mr. Griffiths was second with blooms of Magna Charta, Hippolyte Jamain, and François Michelin. Mr. Wm. Mease, gardener to C. W. Newmann, Esq., being third, also with a good stand, and Mr. Joseph Mayers fourth. Five lots were staged. In the class for eighteen single blooms Mr. T. Griffiths was first; Messrs. T. B. Hall and Mease being equal second. Messrs. D. Walford, Esq., T. B. Hall, and T. Griffiths were the prizetakers in the class for twelve blooms, in which there were seven competitors. The exhibitors in the above three classes were not allowed to compete in the three following. For eighteen single blooms J. W. Hodgson, Esq., was first, and Mr. C. Waterman, gardener to A. Tate, Esq., second. In the class for twelve blooms J. G. Churton, Esq., was first; Messrs. J. Hargreaves and J. W. Hodgson taking the remaining prizes. For six blooms Messrs. A. Tate, J. G. Churton, and J. W. Hodgson securing the prizes in the order as named.

In the class for nine Tea or Noisette varieties Mr. T. B. Hall took the lead; Mr. H. J. Tippet second, and Mr. Joseph Mayers third. In the corresponding class for six Mr. Hall was first, Mr. E. Claxton second, and Mr. Mayers third. For three blooms Mr. Hall was again first, having a good bloom of Madame Bravy, which gained the

premier award for the best bloom. In the class for three Hybrid Perpetuals Mr. Joseph Armstrong, jun., was first, staging a fine-coloured bloom of *Général Jacqueminot*, which was selected and awarded the premier award for the best dark bloom. Mr. Inman being second in this class. In the remaining classes the principal prizetakers were Messrs. H. Mercer, W. Aspinall, and Roger Williams; the first and last exhibitor also taking the prizes as named for the bouquet of Roses.

Miscellaneous Exhibits.—A collection of Roses was sent by the Mayor of Birkenhead, and seven boxes of triplets from Messrs. Cranston & Co., Hereford. Mr. Samuel Johnson, South Grove Nurseries, Oxtou, staged an interesting group of miscellaneous plants, including Orchids, Crotons, Ferns, Palms, Zonal and choice Regal Pelargoniums, the whole being effectively arranged.

The Exhibition was well arranged, and the details aptly carried out under the direction of Mr. Smith and W. E. Hall, the Hon. Secs.

MR. SMEE'S GARDEN—PARISIAN CHAIN BLINDS.

VISITING Wallington near Croydon recently (a name well known to newspaper readers) I had the pleasure of inspecting Mr. Smee's picturesque garden at The Grange. There is no trimness, prim-

ness, nor laboured daintiness there, but all is free, natural, and almost beautifully wild. There are deeply shaded dells of Ferns, where the *Osmunda luxuriates* and the *Struthiopteris* rises like elegant Palms. There are sheltered nooks where the charming Filmy Ferns refresh by their verdant and elegant fronds. There are Roses that ramble to the tops of the trees, forming floral festoons, and affording grateful shade for *Sarracénias* planted at the base of rocks. There are aquatics growing in tropical luxuriance, and rockeries run wild, the plants being obedient to no law but the "survival of the fittest." There are twisting densely canopied walks, mounds, streams, bridges, and rushing waters everywhere. There is there, if anywhere, the "cool grot and mossy dell," where the romantic may imagine with Lord Mornington that "rural fays and fairies dwell." It is a charming retreat on a sultry day. It is the "My Garden" of the late Mr. Smee, and there is no wonder that he enjoyed it. The garden remains the same now as then, the trout stream still meanders through the ground, and the thatched shanty still exists.

But there is a great addition—a fine and well-appointed new mansion in admirable keeping, architecturally, with the character of the grounds; near this mansion is an enjoyable conservatory,

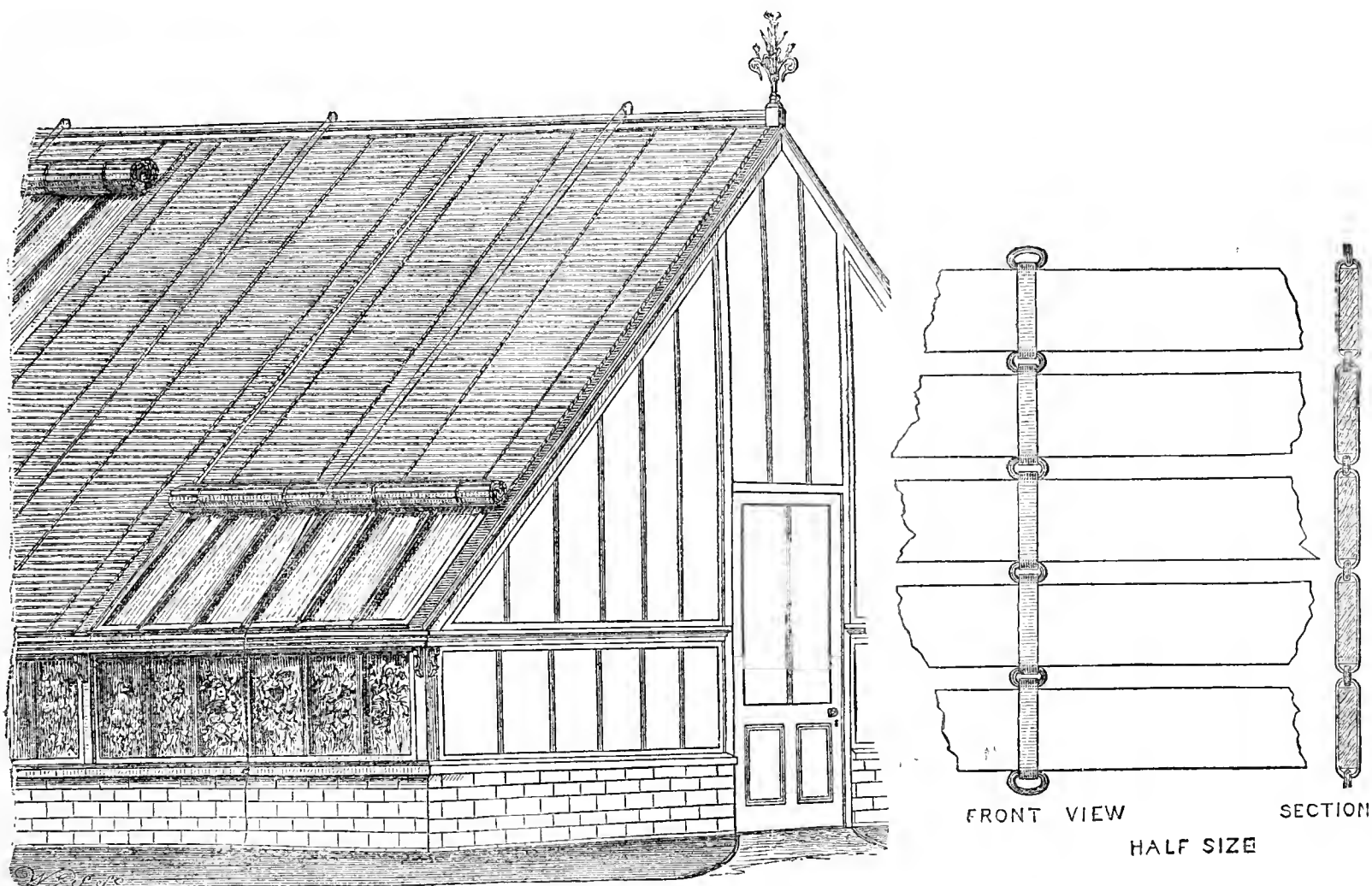


Fig. 13.—PARISIAN CHAIN BLINDS.

and on the conservatory are the blinds under notice. This structure is, however, as much a fernery as conservatory, Tree Ferns and Palms predominating, with just a few flowers to impart a ray of brightness here and there. The plants in this house are in excellent health, and the shade is both grateful to them and to their admirers. The Parisian blinds are much liked by Mr. Smee, and for such houses as this in such sultry weather nothing can surpass them for the purpose for which they are employed. They are made in Paris and used extensively on the continent, Messrs. Richardson & Son of Darlington being the agents for them in this country. As is stated in the prospectus referring to them, "These blinds are made of thin wood laths, with narrow spaces between, and connected by galvanised iron chains, as shown above; they are painted green, and intended to be fixed on the outside of conservatories or hothouses. A single cord running over a pulley rolls up each blind from the bottom. They are usually left fixed through the entire year, and afford protection from frost in winter as well as shade from the sun in summer. They are particularly neat in appearance, and are more durable than blinds of any

other kind—in fact they are almost imperishable. They are supplied direct from the manufactory in Paris in about three weeks after date of order, and are made to any size, but the width should not be more than about 5 feet." There appears to be no exaggeration there judging by those in use at The Grange, for they answer their purpose well, and would be welcome additions to glass structures where shade is needed in gardens generally during "a double-cometed July," such as thousands are panting under at the present time. Such a garden as Mr. Smee's and such a shade as these blinds afford are peculiarly grateful, refreshing, and beneficial to those who have the privilege of enjoying those cool and "green retreats" during the present exhausting and tropical weather.—J. W.

MR. SHIRLEY HIBBERD'S LECTURE ON THE CARNATION.

ON the occasion of the National Carnation and Picotee Society's Exhibition in the conservatory of the Royal Horticultural Society,

a lecture on the Carnation was delivered by Mr. Shirley Hibberd. He said—

The Carnation is the true Gilloflower, and one of the oldest of all flowers when regarded as a subject of the florist's care. When we turn to the old books we find Gilloflowers and Violets innumerable. The stock is a Violet, and so is the Lily of the Valley. Amongst the Gilloflowers we find the Wallflower, Stock, and Rocket, besides the Clove, the Pink, and the Sweet-William, which was often called Sweet John, and our flower of to-day, the Carnation. If you will turn to Parkinson's "Paradisus" you will find at page 318 a chapter headed "Carnations," and therein is a list of nineteen named varieties, comprising The Gray Hulo, The Chrystall, The Stript Sauadge, The Cambersine, and The Great Lombard. At page 310 is a list of thirty "Gilloflowers," comprising The Bristow Blew, The Red Douer, The Daintie, The Sad Pageant, The Stamell, The Tawny, and Master Taggie his Ro-e. The arrangement of the flowers in two classes by Parkinson has no scientific value, because it depends chiefly on the relative sizes of the flowers: the largest, as a rule, were Carnations, and the smaller were Gilloflowers. But if we could hunt up the fifty or sixty sorts he was acquainted with we should probably class his Carnations as Cloves and his Gilloflowers as Carnations. It is a matter of some importance, however, to note that the Carnation is the Gilloflower of the old poets and herbalists. Other Gilloflowers were described with a qualifying adjective, as "Stock Gilloflowers," "Cuckow Gilloflowers," and so forth; but these are the true Gilloflowers, and the name takes us to the sunny lands of the Latin races, for it has a Latin root, and it gives us the suggestion that the Carnation is not in a proper sense of the term a native flower. We have a wild Pink, indeed, and a most lovely flower it is, but it does not appear to possess the elements needful for the formation of such rich and refined flowers as are brought under our notice to-day. In common with many other garden flowers which are undoubtedly represented by wildings of the woods and fields, the influence of a south European climate appears to be and to have been needed for their full development. Hence we may treat with respect the probable reference to the Carnation by Pliny in the eighth chapter of his twenty-fifth book as the Cantabrica, which he says was discovered in Spain in the days of Augustus Cæsar. It is amusing to note that Pliny antedates the "Soppes in Wine" of the old English writers by describing the Spaniards as employing this flower to give a spicy flavour to their beverages. In Philemon Holland's grand translation we read, "At this day in their great feasts where they meet to make merry Sans-nombre, they haue a certain wassell or Bragat, which goeth round about the table, made of honied wine or sweetmead, with a hundred distinct herbs in it; and they are persuaded that it is the most pleasant and wholesomest drinke that can be deuised; yet there is not one amongst them all who knoweth precisely what speciall herbs there be in all that number. In this only they be all perfect, that there go a hundred several kinds thereto, according as the name doth import." Thus in the endeavour to trace up the geographical history of the Carnation we are reminded of the wisdom of our forefathers, who preferred to employ Carnations, and Roses, and Borage, and Woodruff, and Tormentil to flavour their drinks, than to combine destructive alkalis with equally destructive ardent spirits, or to take revenge on the blessed sunshine and the delightful thirst it engenders by swallowing frothy fluids with mysterious names and much more mysterious properties. To return to the flowers, it seems that the south of Europe gave us the first start in high-class Carnation culture, as it gave the first start and sustains the latest fashion in the selection and management of Daffodils.

Thus we are prepared to open the pages of the renowned John Gerarde in a state of preparedness to believe that the Carnations he obtained from the worthy merchant, Master Nicholas Lete, were the first of their kind seen in this country. And the mention of its introduction by Master Lete from Poland affords me a proper excuse for declaring that the present Exhibition is the terecentenary of the Carnation; for the work of Gerarde was published in 1597, and we may reasonably contend that it was in or about the year 1581, or say sixteen years before Gerarde's book was completed, which carries back the history of the Carnation to a date exactly three hundred years from the present time.

So far good: in these matters we must pay respect to authority. But we must not forget the scriptural precept to "prove all things." On turning to "Haydn's Dictionary of Dates," under the word Carnation, I find it stated, on the authority of Stow, that the flower was introduced from the Low Countries in the year 1567. It would not be difficult to harmonise this statement with the story of its introduction by Master Lete, for this we may be sure of, that it had been in the country some time before Gerarde's "Herball" appeared. But I would suggest that the

flower is really of greater antiquity than appears from these evidences. The "Carnations and Streaked Gilvours" that Perdita describes as the fairest flowers of the season, were probably as old as any flowers of the English garden; for we cannot imagine Shakespeare, in such a scene and context, introducing any flowers that had but recently come into cultivation. The "Winter's Tale" was written in the year 1601, or only three years after the publication of Gerarde's book; and Perdita speaks of these flowers as deriving their special qualities, or, as we should say, "properties," from the arts of the florist, and as therefore less worthy of her attention. They are such, she says, as "some call Nature's bastards," and she seems pleased to own that "of that kind our rustic garden's barren." This goes at least to show that there were many varieties of the flower known in the year 1601, and that they were so far common that the humblest lovers of the garden could afford to reject them if they were stigmatised as "Nature's bastards." Finally, to make an end of this part of the subject, it may be proper to state that we learn from Chaucer that the Clove Gilloflower was cultivated in this country in the reign of Edward III., and was commonly used to give a spicy flavour to ale and wine.

(To be continued.)



HARDY FRUIT GARDEN.

THE forward Apricots and Peaches will now require attention to give the fruit the benefit of sun and air, turning the leaves aside, but avoiding as far as possible the too common practice of removing those that shade the fruit. Fruit trees generally have not made so much wood as usual, but they should be examined frequently, nailing or tying-in leading shoots, and pinching those required to form spurs. Lay in the young wood of Peaches, Nectarines, and Morello Cherries, allowing sufficient space between each for the admission of light and air, so as to secure well-matured wood. Complete as soon as possible the removal or shortening of the breastwood and stopping the side growths, laying in wood where necessary to fill vacant spaces, and secure the extensions of Pears, Plums, Cherries, and Apples, also attending to the requirements of bush, pyramidal, and espalier fruit trees as advised in former calendars. Let fruit trees against walls be syringed occasionally in hot weather, and those swelling off their crops be assisted with liquid manure, unless the trees are vigorous and carrying but light crops of fruit. Apricots ripening will need protecting from birds and ants. Guano strewed in the runs of the latter and over their nests will mostly cause them to change their quarters, or pouring nicotine soap at a strength of 6 ozs. to a gallon of water at 100° over their nests will destroy them. They may also be trapped by placing a number of jars at the base of the wall containing about an inch depth of treacle and water. Earwigs are troublesome, and may be trapped in pieces of beanstalk cut into lengths of about 6 inches inserted among the branches. Examine them every morning, blowing any concealed inside into a bucket of water. Woodlice may be trapped in small pots baited with a boiled Potato covered loosely with a little hay. Continue to pot runners of Strawberries as they can be procured for the purpose of forming new plantations or for forcing. Budding must now be followed up generally with fruit trees; and where it is requisite to fill up vacancies in established trees or to change the variety, buds may be inserted with every prospect of success in wood of one or more years' growth, providing the bark is not too rough and hard, in which case it is better to head down early in spring and work upon the young wood when sufficiently matured in summer.

FRUIT HOUSES.

Peaches and Nectarines.—The earliest trees from which the fruit was gathered some time since will still require attention in watering the borders and in syringing the foliage, so as to maintain it healthy and secure plump flower buds for next year. This will be more particularly necessary where the roof lights cannot be removed, and in that case the lights must be open to the fullest extent day and

night. In the second house the fruit is nearly all gathered, and watering inside borders must not be neglected, nor syringing the trees so as to preserve the foliage in good condition. Trees enfeebled by forcing may be afforded liquid manure plentifully, which will help them to form plump flower buds. Cut out the growths (not extensions) that have borne fruit this season, and if there is any approach to overcrowding remove weakly growth, or where too crowded thin so as to allow that retained to become well matured. The fruit in the third house is now ripening fast, and must have good supplies of water and liquid manure. Fire heat will not be required, and if it is wished to bring the fruit forward allow the temperature to advance to 85° or 90° after free ventilation, which will be very much better than fire heat. Cease syringing the trees when the fruit commences ripening, and yet keep a moderate proportion of moisture in the house for the benefit of the foliage. In very hot weather the fruit ripens more quickly than is required, in which case retard by shading. Have the fruit near the glass to insure its colouring. In the next succession house supply the borders with liquid manure or water as may be needed. The trees must be well syringed and the shoots tied in closely, stopping laterals at one joint, also irregularities of growth. In late houses ventilation will be needed to the fullest extent in hot weather, and the borders must be well watered; liquid manure assists the fruit, and mulching will help to keep the roots near the surface, lessening the necessity for frequent watering. See that there is not any overcrowding of the growths.

ORCHARD HOUSE.

Cherry trees in pots when the fruit has been gathered may be removed to a sunny position in the open air to harden the growth and perfect the fruit buds. The pots should be plunged, supplying water freely and syringing. Apricots are fast approaching maturity, and must not now be syringed. The early Peaches are ripening, and should be treated similarly to Apricots. The fruit of other Peaches Nectarines, Plums, and Pears are rapidly swelling, and the trees should be abundantly supplied with water, whether they be planted out or in pots. Liquid manure also may be applied occasionally, and the surface dressing renewed. Secure a moist atmosphere by syringing the trees freely and closing the ventilators between 5 and 6 P.M., opening them again between 6 and 7 A.M. Stop strong shoots where necessary, and rub off superfluous shoots, so as to admit light and air freely to the fruit. Fig trees in pots should have the young shoots stopped where found necessary, and be plentifully supplied with water and liquid manure whilst the fruit is swelling. Be careful to prevent a check, which is almost certain to result in the fruit dropping. A top-dressing of rich material will assist the fruit in swelling, also prevent dropping by encouraging surface-rooting. Ply the syringe freely until the fruit is ripening. Fig trees in an orchard house are not to be relied on for a second crop, but if the stopping has been attended to they will, if removed to a house with a slight artificial heat as soon as the first crop has been gathered, afford a second crop of ripe fruit. Vines in pots or otherwise will have the fruit fit for thinning, and should be carefully done. Supply liberally with liquid manure, and mulch the surface of the soil with short manure.

FLOWER GARDEN.

Flower beds require frequent attention to remove dead or decaying leaves and flowers; removing the seed pods not only improves the appearance of the plants, but tends to a free and continued production of flowers. Verbenas, Petunias, and similar plants should be pegged down and picked over, also thinned by pinching a portion of the growths back. Calceolarias, Violas, Verbenas, and similar moisture-loving plants should have abundance of water in dry weather, but it should not be given over the flowers. Free-growing plants employed for carpet bedding soon enroach on weaker varieties if not frequently pinched-in; the marginal lines and those forming the design must be kept clear and distinct. Subtropical plants advance rapidly, and unless securely staked and tied they are liable to be damaged by the wind; similar remarks applying to Dahlias and all plants having a large leaf surface. Mulching with short manure and copious supplies of liquid manure are absolutely necessary to have these plants in good condition. Asters, Stocks, Zinnias, Marigolds, and similar plants should, when in free growth, receive liquid

manure abundantly, and if flowers of extra size are required the buds must be thinned. Prick off hardy perennials, and sow again if necessary. Roses must as they cease blooming have the growths shortened back a little, and be watered with liquid manure to insure a free growth and good autumn bloom, mulching with short manure a few inches thick. Syringe the plants in hot weather. If mildew appear syringe with pentasulphide of calcium, using a wineglassful to a gallon of water. Push on budding whilst stocks and buds are in good condition, continuing to make cuttings of ripened growth, inserting them under handlights.

PLANT HOUSES.

Stove.—Plants that continue flowering through the summer and autumn, such as Allamandas, Dipladenias, and Bougainvilleas, are free-rooting, and should be assisted with a surface dressing of manure and liberal supplies of liquid manure applied before the plants become too much exhausted. Euecharis amazonica can hardly be grown in too great quantities where cut flowers are in request; and where sufficient plants are grown it may be had in flower all through the year by growing and resting some of the plants at different seasons. Plants that have completed a good growth since flowering should now be rested by withholding water until the leaves flag slightly, when a little should be given them, but not enough to induce growth. Place the plants in a house where the temperature is 5° or 10° lower than that in which the growth has been made for about six weeks, watering only to prevent the foliage becoming dry. After this remove them to their growing quarters, and they will soon produce their flower scapes, especially if bottom heat be afforded.

Celosias from late-sown plants for autumn flowering, when they are very useful, should receive timely attention, not allowing them to become stunted for want of root room, and not affording more heat than will maintain them in steady progressive growth. The display of fine heads of bloom is in proportion to the size and strength of the plants. Very useful plants may be grown in 6 or 7-inch pots, but very much finer will need 9 or 10-inch, in either case keeping them as near the glass as possible. A cold pit is suitable at this season kept rather close. Liquid manure may be afforded once or twice a week, and use the syringe daily to keep red spider in check. Anthurium Schertzerianum requiring more root room should be potted now the flowering is over, and this will afford the plant the benefit of the fresh compost whilst making its growth. Being a surface-rooting plant it does not require a great depth of soil, but must have efficient drainage. It does well in fibrous peat, a third of sphagnum, and about a sixth in equal parts of crocks, charcoal, and sand.

THE BEE-KEEPER.

SWARMS UNITING.

THE other day I had some experience in hiving swarms that had clustered together, the narration of which may be helpful to some readers. The present season in Scotland has been rather productive of such mishaps, owing mainly to the rarity of suitable swarming weather and the suddenness of its arrival when it comes. The case I refer to was that of a neighbour, no less than five of whose large supered bar-frame hives had swarmed one after the other, all the swarms settling together in the next garden on an espalier Apple tree. I calculated the united cluster at 30 lbs. weight at least. The owner had been three hours at work endeavouring to hive the bees before I appeared on the scene, but as fast as he removed one of the three skeps propped over the cluster the bees left it and returned to the tree. To have attempted to get such a mass of bees into one hive might have been good policy so far as reaping a large harvest from one hive was concerned, but when this involved the loss of four fertile queens it was not to be thought of. My first determination, therefore, was to secure the queens. As one of the three skeps was quite full of bees, which also hung in a compact cluster a foot below its mouth, it was first set aside across two sticks resting on an empty box. Evidently this portion contained at least one queen, as the bees remained content after being separated from the clustering mass on the tree. By

boring into the cluster on the tree with a stick, and injecting a little smoke, I generally find the queens rush to the surface. In this way I secured one queen, which was caged, and the cage thrust through the crown hole of the emptier of the remaining two skeps. A second queen was found dead under the cluster. There remained two to be accounted for, neither of which could be seen. By way of a test a second skepful of bees was removed and placed on the ground a few yards off. Watching it for a few minutes it became evident by the increasing commotion that no queen was in it. I therefore at once pulled the cage out of the third skep and inserted it in the removed one. In a moment the hum of contentment showed all right there. In due time the third skep was similarly removed, and, as it remained quiet, gave proof of having a queen. As there still remained a small cluster contentedly on the tree it was hived in a fourth skep, and proved also to have a queen. As this was a small cluster the queen was taken away, re-introduced to one of the parent hives, and the bees joined to those of another skep.

Had any of the queens remained unaccounted for I should have made a search further while running the bees into their new bar-frame hive; as it was, it was at first thought that six hives had swarmed, and that one queen was still to be sought for. The first and largest portion of the bees was therefore run up a sloping sheet into a sixteen-frame hive, a queen secured and temporarily caged in the hive then being filled. As no other was found she was released, and it was discovered that there had been only the five swarms.

The disposal of such enormous masses of bees is often a question with bee-keepers. A year or two ago a gentleman just arrived from East Lothian said that when he was leaving there a man was attempting to hive the united swarm from sixteen hives into a washing tub. A neighbour of mine, for want of another plan, hived three top swarms into one hive and lost two of the queens. This was about a week ago, but already the bees have filled a large hive, and are doing splendid work in two tiers of supers. It may during a glut of honey, and when comb foundation and supers are available, be the best policy to hive large masses together, but it is bad policy to allow even a laying queen to be sacrificed in doing so.

I have a stock formed of three swarms that went together just a week ago. I saved two of the queens by picking them off the cluster while on the tree. This stock has already as much super honey as any old stock in my apiary. In another case, two days ago, a first swarm was being run into a bar-frame hive when another came off and settled on the same hive. As I failed to see a queen I waited for an hour or two, when by gently pushing the bars aside I easily discovered a queen by the ball of excited bees that hug her in such a case. The ball was lifted out with a spoon, the bees dispersed, and the queen restored to the hive from which she had swarmed. Duplicate queens can thus easily be removed a few hours after the swarm is hived. In skeps the balls are usually to be found on the floorboard.

In the case of the united swarm last mentioned a rather rare circumstance transpired. After the queen referred to had been removed the bees continued very excited, which led me to think they had balled the other queen. This I found to be the case. She also was caged, but left in the hive. Still the excitement continued all night, and next morning when I went to liberate the queen I found the cage surrounded by an excited mass of bees. Still I thought it safe to liberate the prisoner. At once she was again balled. Such a case could only be accounted for by supposing that in some mysterious way a third queen had entered the hive, so I at once removed the balled queen. In a few moments the excitement died away, the bees set to work with a will, and in twenty-four hours had all their combs built out and mostly furnished with honey, besides starting in a case of sections. The intruder, of which I only had one hasty glance, turns out to be the late head of a nucleus that stands 10 yards off. She had been out on her wedding trip while the swarm was in the air, and joining it entered the hive, where she seemed to be preferred to the pair of old queens. A few hours more and I should have been minus two fertile queens, which means just now a prospective loss of five thousand bees a day for at least a week.

It may not be possible to return each queen captured to her own hive. In the above case I knew the queens by sight—one little advantage of keeping various races and crosses in an apiary. Had I not been sure where each belonged to I should have introduced them with all the precautions taken with strange queens, cutting out royal cells, &c. As it was, I simply let them run in at the door.

After-swarms very frequently contain several virgin queens, which may be easily captured and made use of in a similar way to the above if they are considered worth the while, but in bar-

frame management after-swarms are not generally allowed, and are easily prevented.—WILLIAM RAITT, *Blairgowrie*.

TRADE CATALOGUES RECEIVED.

James Walters, Mount Radford, Exeter.—*Catalogue of Roses*.
L. Spath, Kopnickstrasse, 154, Berlin.—*Price List of Bulbous Plants*.



Lygodium scandens (*R. G.*).—If the specimen is sufficiently large and in good condition it will be suitable for exhibiting either in a collection of Ferns, or a collection of miscellaneous plants from which Ferns are not excluded.

Liquid Manure (*Idem*).—If the liquid in the tank is not too strong it will benefit all kinds of softwooded plants and fruit trees in pots that require more nourishment than the soil affords. It must not be given to hardwooded plants, nor do we advise its use for Ferns without knowing its nature more precisely and the condition of the plants. For all kinds of plants in pots liquid manure is best given in a comparatively weak state, with alternate applications of pure water.

Hot-water Pipes (*A Lover of Grapes*).—We are quite unable to explain the differences in the prices to which you direct our attention, neither do we quite understand the advertisement. You had better write to the firm for further particulars and specific information on the subject. If you obtain a written warranty that an article is sound and of good quality you will, we presume, purchase at the lowest quotation.

Preserving Walnuts (*T. G.*).—As you have no cellars at your command we should place the nuts in large earthenware pipkins, or failing these in large flower pots, and bury them in a cool position in the garden. We have kept nuts successfully by this simple method. In some of the pots we have mixed sand with the nuts, others sawdust, and in other pots the nuts have been placed without either sand or sawdust, and there was little or no difference in the results. Walnuts may be kept for a considerable time in an ordinary shed if they are placed in pots with moderately moist sawdust, but not that from Fir trees, which contains turpentine.

Fuchsia Flowers Spotted (*C. D.*).—Owing to the blooms having been placed loosely in a box they had been so dashed in transit, and also withered, that they arrived shapeless and shrivelled. The material of which your floor is formed is not the cause of the flowers spotting. A damp floor during such hot weather as we have recently experienced is not injurious, but the contrary, to Fuchsias, provided the ventilation is properly managed. You either keep your house too close, or air is not admitted sufficiently early in the morning. Leave the top lights open to an extent of 6 inches all night, increasing the ventilation the moment the sun shines on the house in the morning, the front ventilators also being opened before 8 A.M. during hot weather.

Campanulate Foxgloves (*Mrs. Davidson*).—Such flowers as you have sent are frequently met with in gardens, but we are not aware that the peculiarity has been "fixed"—i. e., that all the plants raised from seed from the abnormal flowers produce similar flowers. We have seen plants having flowers like those you have sent in a garden this year, that last year produced ordinary flowers. Save seed only from the large flowers, and we shall be glad to know if the plants that you raise inherit the character of the parents. The stems are fasciated, but the cause of the fasciation is not known. The reason you suggest for the character of the flowers is not tenable.

Packing Flowers (*J. T. S.*).—Plants sent to be named should be packed in boxes sufficiently strong that they are not crushed in transit. The ends of the stems should be wrapped with damp moss, and the flowers packed in green leaves such as Spinach or Rhubarb. They then arrive in a fresh state. If sprays are simply enclosed in envelopes the flowers are generally so much crushed that it is either impossible to determine the names, or much time is lost in endeavouring to do so. When sprays are packed in dry wadding it usually extracts the moisture from them and the flowers arrive in a withered state. Of the sprays sent in your envelope the white flower is crushed almost beyond identification, but we think it is *Ranunculus aconitifolius flore-pleno*; the yellow flower is *Lysimachia thyrsoiflora*, and the other *Astrantia major*. Each flower sent to be named should have a number attached which is visible without untying the ligature that binds it to the stem. Tin boxes are the best of all for packing flowers in.

Making a Lawn (*J. S. J.*).—The best time for digging up a lawn and sowing grass seeds is probably during fine weather in April; but it may be done at any time before September if the ground is moist and the weather genial. For digging up an old lawn and cleansing it from weeds, which is very important, dry weather is favourable; but it would be little use sowing the seed when the ground is hot and dry as dust, neither would a shower that moistened the surface only, leaving the ground dry below, render the plot suitable for sowing. We never submit estimates of cost, nor can we name the best mixture of Grasses for your purpose without knowing the nature of the soil. The most economical plan you can adopt is to state the size of your ground and the nature of the soil to an experienced lawn seedsman, and you will be supplied with the proper mixture and quantity with the cost thereof. If you order your own mixture the cost will be greater, while the results will not be better. Lawn seed cannot well be sown too thickly, thin sowing being false economy. Reliable seedsman advertise in our columns.

Naming Coleuses (*Stoke-on-Trent*).—As we have many times stated, we do not undertake to name varieties of plants, but only species, and as the leaves you have sent represent varieties we cannot name them. Coleuses are now so numerous, and many of the varieties so closely resemble each other, that it is not possible to determine the names from leaves without comparing them with the plants in a large named collection. If you send leaves to the florist from whom you purchased the plants he will name them for you; or a

nurserymen with whom you have a trade connection would doubtless oblige you if he be able to do so.

Winter Cucumbers (A. B. W.).—You cannot, we think, grow a better variety than the Telegraph for affording such fruits as you require during the winter. During the last week of the present month is a good time for sowing seed or striking cuttings. You must not, however, strike cuttings from your present plants, as we fear from what you say that they are affected with the disease. If this is so you must adopt promptly the remedial and preventive measure recommended to "H. H." in this column, or the chance of your succeeding with winter Cucumbers will be extremely remote.

Bouvardias for Market (Idem).—Some of the best are B. jasminiflora, B. Humboldtii corymbiflora, B. Vreelandii, and the scarlet variety B. Hogarthii. You do not ask for any cultural notes, so we presume you are conversant with the usual practice that is pursued by growers of these plants.

Cucumbers Spotted (H. H.).—We do not attribute the condition of your plants to any error in cultivation. They have been attacked by a disease that is most difficult if not impossible to cure. We recently saw a large house of plants in charge of a most skilful and generally highly successful grower of Cucumbers. His plants were stricken the same as yours, and the disease spread in spite of every remedial measure that he applied. We should destroy the plants, clear out every particle of soil, thoroughly cleanse every portion of the structure, walls, floor, and woodwork, and disinfect the house with sulphur. By doing this, and obtaining soil from a fresh source, you may perhaps succeed with the next crop; but unless you adopt energetic measures for stamping out the disease it will cause you trouble and loss for years.

Pugs (A. B.).—Questions such as you have submitted are beyond our province, and we cannot undertake to answer them, neither is the subject suitable for discussing in our columns.

Choice Carnations and Picotees (G. T.).—It is not possible to name any one variety in each class that can be relied on as the "best" during all seasons and in different situations. The following, however, are good. *Carnations*: Scarlet Bizarres—Admiral Curzon and Dreadnought are so much alike as sometimes to be undistinguishable. Crimson Bizarres—Rifleman is fine, but in some places comes defective; then substitute J. D. Hextall. Pink and Purple Bizarres—Sarah Payne, William Murray, and Unexpected. Purple Flakes—Dr. Foster, James Douglas, and Squire Meynell. Scarlet Flakes—Clipper and Sportsman. Rose Flakes—John Keet and Sybil. *Picotees*: Heavy Red—John Smith. Light Red—Thomas William. Medium Red—Lucy. Heavy Purple—Zerlina. Light Purple—Mary or Ann Lord. Medium Purple—Alice. Heavy Rose—Lady Louisa or Miss Horner. Light Rose—Mrs. Allcroft. Medium Rose—Miss Wood.

Carrots Grubbed (A. A. E.).—Grubs are quite a plague this season both with Carrots and Onions, the latter in many places being entirely destroyed. The destruction of the Carrots is caused by the larvæ of the Carrot fly (*Psila rosæ*), which bores into the roots, and ultimately causes the death of the plants. We do not know anything that you can apply or do to save the remainder of the crop beyond pulling up the plants attacked. A dressing of gas lime at the rate of a peck per rod (30½ square yards), scattered over the ground and pointed in before sowing, is a good preventive; also quicklime at the rate of a bushel per rod; but a dressing with sand saturated with spirits of tar (creosote) spread evenly over the ground before sowing and lightly forked in is the best remedy we have tried. A gallon of the creosote will saturate sufficient sand to apply to 2½ rods, or 75 square yards.

Concrete Walk (W. C. B.).—A layer of stones, brickbats, or clinkers should be put in to form a dry bottom, 6 inches being sufficient. Then a layer of rather coarse gravel in the proportion of one part lime to five of the gravel, formed into a mortar-like consistency with water, put on 3 inches thick, rising about 2 inches from the sides to the centre. Roll firm, and then put on about half an inch thickness of best fine gravel and roll again until quite solid. This forms a durable pathway, but not equal to those formed by employing Portland cement in place of the lime. A foundation is formed for the walk, and to the ordinary gravel employed for walks is added a fifth of cement, bringing it to the consistency of mortar with water, placed 3 inches thick, and made even in the surface. It sets like rock, and wears capitally.

Fuchsias and Pelargoniums Withered (W. S., Dalton-in-Furness).—It is impossible for us to answer your question without better specimens to enable us to find the cause of the evil of which you complain. Those you sent enclosed in a letter were crushed into a shapeless mass. If you will send us sprays or cuttings from the plants—foliage, as well as flowers—packed in a small box so as to arrive in the condition in which you send them, they shall be carefully examined. You had better also repeat the purport of your present letter when you send fresh specimens.

Names of Plants (G. O. S.).—*Clematis Vitalba*. (M. J.).—1, *Francoa appendiculata alba*; 2, an uncommonly fine specimen of *Rondeletia speciosa major*; 3, *Meyenia erecta*; 4, *Spiraea vacciniifolia*; 5, *Retinospora plumosa aurea*; 6, *Geranium pratense*. (A Young Gardener).—1, *Spiraea Ulmaria*; 2, *Reseda alba*; 3, *Centaurea Scabiosa*; 4, much withered, but resembles *Helianthemum canum*. (G. L.).—A very imperfect specimen, but probably *Vicia tetrasperma*. (W.).—*Anthericum Liliago*.

Choosing Skeps for Keeping (R. H., Bucks).—Since you determine to retain but two of the four hives we should recommend you to take the honey of the old skep and that of the first swarm. Our reasons are as follows:—The old skep breeds immense numbers of drones, pointing either to some defect in its queen or to an excessive quantity of drone cells. Then the first swarm has the old queen formerly in the aforesaid skep. Arranging thus you retain two casts, the queens of which are necessarily young and which have probably filled their respective hives with worker comb only. Your plan will be by slow removals to get your hives standing in pairs, each containing one condemned hive. At the close of the honey season drive the bees from the condemned and add to the companion hives; appropriate the honey, and save if possible all the brood. This you will best do by putting two or three skewers through a snug straw cap, and threading the pieces of brood comb upon those, keeping the correct distance apart. The straw cap will now be put over the weaker lot, and removed when all the grubs have hatched out. The little lot of bees remaining in the cap can be got rid of by placing the edge of the inverted cap against the alighting board and patting as in driving.

COVENT GARDEN MARKET.—JULY 20.

STRAWBERRIES are now practically over, and bush fruit is arriving in large quantities; the supply of Grapes continues abundant.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	0 0 to 0 0	Lemons.....	case 12	0 to 18 0
Apricots.....	box	1 6 3 0	Melons.....	each	2 6 4 0
Cherries.....	½ lb.	0 3 0 9	Nectarines..	dozen	4 0 10 0
Chestnuts.....	bushel	0 0 0 0	Oranges.....	½ 100	4 0 8 0
Currants, Black	½ sieve	6 0 6 6	Peaches.....	dozen	4 0 12 0
" Red.....	½ sieve	3 6 4 0	Pears, kitchen	dozen	0 0 0 0
Figs.....	dozen	4 0 6 6	dessert.....	dozen	0 0 0 0
Filberts.....	½ lb.	0 0 0 0	Pine Apples ..	½ lb	3 0 4 0
Cobs.....	½ lb	0 0 0 0	Strawberries ..	per lb.	0 4 1 0
Gooseberries ..	½ sieve	2 6 3 6	Walnuts.....	bushel	0 0 0 0
Grapes.....	½ lb	1 6 4 0	ditto.....	½ 100	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress	punnet	0 2 0 3
Beans, Kidney....	½ 100	1 0 1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling.....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 9 1 0
Carrots.....	bunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	½ 100	1 6 2 0	Kidney.....	bushel	4 0 4 6
Canflowers.....	dozen	0 0 3 6	Radishes....	doz. bunches	1 6 2 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 8	Scorzoneria ..	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	0 0 0 0
Fennel.....	bunch	0 3 0 0	Shallots.....	½ lb.	0 3 0 0
Garlic.....	½ lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 3 0 4



POULTRY AND PIGEON CHRONICLE.

THE DISEASES OF SHEEP AND LAMBS.

(Continued from page 46.)

In the treatment of contagious diseases carbolic acid has been used for some years on account of its antiseptic properties, and also as a valuable preventive of zymotic affections. We, however, anticipate that salicylic acid will entirely supersede the use of carbolic acid, for although the former has only lately been recommended, its speedy action in all cases where fever prevails gives it an advantage over any other remedy yet discovered.

We must now call attention to the disorder called "husk or hoose," for in some seasons we have known many lambs and hoggets lost from this complaint, it being caused by an accumulation of filaria in the bronchial tubes, which are a kind of thread-like worm, and from the deposit of the ova of these creatures they are found in countless numbers in the air cells and minute bronchial tubes, especially on the edges of the lungs. The appearance of these after death has been examined by the use of the microscope. Many lambs have also been lost occasionally from a worm of the filariae tribe being located in the third stomach of the animals. Up to the present time we have but little evidence to produce as to the cause of these parasites, but the treatment has been very successful for destroying them by moderate doses of turpentine, lime water, and oil. We, however, strongly incline to the idea that the use of salicylic acid would be likely to be of service, and recommend a trial of it, for it is more than probable that some inflammatory or feverish action prevailing in the parts has been the cause of the filariae locating in the lungs as described; at any rate, it is worth a trial in the event of an attack of these worms.

We have now to mention the serious affection to which the best and fattest wether lambs and ram lambs are subject—the stoppage of urine, attended with acute inflammation of the bladder. This disease was seldom noticed until the free use was made of the Mangold roots in feeding our stock. We have found that it arises from the deposit of sugar in hard globules, and these become fixed at the mouth of the bladder or the narrow pass of the

urethra. In fact, we could come to no other conclusion when we found that the ewe lambs never suffered from this cause, consequent no doubt upon the wider urinal passage in their formation. Our fattening lambs have suffered most extensively from this cause, and the fattest animals are always most liable to be attacked. Unfortunately, too, we have never found any remedy, nor is the flesh of the animals any use to the butcher, as the meat is found in a diseased and offensive state. Very fat wether sheep also suffer from the same cause, but not the ewes, therefore the only preventive is not feeding with Mangolds after the animals are about half fat.

Diseases arising from blood-poisoning may be now referred to, and we cannot do better than quote from a lecture lately delivered at the Kingscote Agricultural Association in Gloucestershire by Professor McBride of the Royal Agricultural College on "The Prevention of Diseases in Cattle and Sheep." He says, in speaking of splenic apoplexy, "This is a true form of anthrax fever, which is due to the presence of an organism in the blood which is particulate and definite in its structure. Splenic apoplexy may be prevented in the same way that quarter evil may—by the use of sulphur fumigations, and by the use of salicylic acid. Salicylic acid is, in fact, a wonderful preventive in all blood diseases; take for instance splenic apoplexy, black quarter, pleuro-pneumonia, foot-and-mouth disease, small pox in sheep—in fact, all our contagious and infectious diseases. If you will use sulphur fumigations and salicylic acid I will stake my reputation that you will prevent them." We must accept this statement as of the highest importance, and will therefore give Dr. McBride's statement of how to use the said remedies. He says, "In sheep practice, however, in which drenching is a serious matter, sulphur fumigation is extremely useful. Place some live coals in the house, sprinkle sulphur over them, and let the sheep inhale the gas given off. If you ask me what strength should be the fumigation, I would say the better plan is to let the man stay in the house with the sheep, and if the fumes are too strong for the man they are probably too strong for the animals."

This plan of fumigation is very well as a theory, and may be done by a veterinary, but in some blood diseases the sheep are only attacked a few at a time, and practically in a large flock it is quite beyond our everyday practice to carry it out. It must be considered that when the flock is attacked with pleuro-pneumonia, foot-and-mouth disease, small pox, sheep scab, or, in fact, by any contagious disease, if it is general and applies to a majority of the animals, the treatment as here recommended may be resorted to for the whole flock under veterinary instructions and careful treatment by the home farmer. If, however, only a small number should be suffering salicylic acid alone will probably be sufficient, not only to cure, but to prevent the extension of disease if given internally and applied externally. Fumigation must not be carried on to excess by continuing it, especially for pregnant ewes, as they may break out with a serious scour, or they may commence lambing prematurely and bring dead lambs. These observations lead us to a point when we must anticipate the lambing time, and be prepared for every emergency and all the accidents attendant upon parturition, such as inflammation of the udder, injuries to the womb, and internal fever. Now we have the salicylic remedy the home farmer may (if he has kept his ewes generously and also judiciously during the period of gestation) look forward to the time of lambing and all the attendant results without fear of serious losses, which many farmers have suffered in times past. We have in bygone days suffered loss from serious attacks of inflammation in the udder of our ewes; we treated them by freely bleeding from the neck vein, and used the sugar of lead ointment, except when mortification threatened, we then applied verdigris ointment most successfully. Now with a salicylic drink internally, and a lotion of the same applied to the parts affected, we may by timely attention avoid the necessity of bleeding. This must be considered an improved practice, because the animal would not be reduced in condition, but the fever and inflammation would be speedily reduced, and most probably without diminishing the supply of milk, except for a short time. Formerly in all the most serious cases we never expected the animal to give milk again, and we were glad to save its life as the result of our remedies.

Our further remarks will refer chiefly to the lambs from birth until they are about a month or six weeks old. The two most formidable complaints to which they are subject is the "white scour" and swollen joints, called rheumatism or joint fellow. Our new remedy will again serve us in good stead in both these cases if ordinary good management is adopted by the home farmer and his shepherd. The white scour is generally caused by the ewe's milk being in an unhealthy state, arising from either internal fever or blood-poisoning, both of which will be neutralised

by the drink of salicylic mixture. The careful management to which we have alluded consists in one respect of noticing daily if the ewes have too much or too little milk for the lamb in its infancy, and this cannot be properly attended to but by the actual cooping of the animals, and examination of the udder of any ewes the lambs of which may be doing badly or suffering under the scour. The best treatment for the lamb in its infancy would be a few drops of laudanum, called tincture of opium, in a little warm water; we have usually found this to be effectual if the dose is repeated every four hours until the disorder ceases. But we make no doubt that scour in lambs, at any period after they are a month old, may be treated as successfully with the salicylic remedy as sheep of any other age. Scour or diarrhoea affecting them arises from internal derangement, of which feverish symptoms are the basis. With regard to the rheumatic or swollen joints from which the lambs suffer, that also arises from either too much milk or too little; for if the milk is allowed to accumulate in the ewe's udder it becomes distasteful, and the lamb refuses it altogether, and is then subject to taking cold in the joints through partial starvation, just in the same way as when the ewe has an insufficiency of milk to sustain the lamb in health and condition. We have on certain occasions attempted to save lambs thus affected, but they do not pay for saving, and we have therefore preferred to destroy them; still we believe that the salicylic drink may be given both to ewe and lamb at the early stage with advantage, and we advise the trial of it.

WORK ON THE HOME FARM.

Horse Labour.—In the late districts some horses will still be engaged in drawing the mowing machine and in carting the hay to stack. Some Turnips after green crops will have to be sown, also after Rye, winter Barley, or early Peas; for after the crop is cut it may be set up on one-third or fourth of the land, and the intervals sown with Turnips and manure drilled with the seed whilst the land is moist, soft, and workable. If left only for a day or two the soil soon becomes hard and dry at this time of year, the crop being lost not only for want of moisture but because it cannot be worked fine—so essential to the successful growth of root crops. We note on all the light soils that the Poppy makes a great show in the corn, and on light land it is about the most difficult weed we have to contend with. At the time when Charlock and such weeds can be pulled with the weeding machine the Poppies are small and cannot be touched in using the machine, nor can they be kept down, except in the corn crops, without the corn is drilled at 10 or 12 inches and the land horse or hand-hoed, or both. The injury and damage done by the Poppies is that they compete with the corn, and if left to seed require nitrogen for perfecting their seed heads like corn. In carting much of the late pasture hay to stack it should be remembered that in case it is gathered dry and well made there is but little nutriment in it. Although the Sweet-scented Vernal Grass gives it a pleasant aroma, it will pay for spicing at the time of stacking better than by using the spice at the time of feeding the animals. It may then be used as long hay if spiced in the rick, but otherwise it is used in admixture with chaff, and consequently with more waste.

Hand Labour.—Hoeing the root crops will now form the chief labour both for men and women, and the earlier this is done the better—as soon as the plants are strong enough for the horse-hoe to pass between the lines without burying them. With regard to the second hoeing, the sooner it follows the first the better, because the weeds are so much more easily destroyed whilst young. It often happens that in delaying the second hoeing the harvest is ready before the hoeing is quite completed. It should therefore be foreseen as much as possible, so as to finish the hoeing of root crops before the harvest begins, as it always costs more to hoe the root crops during harvest, besides which it is often difficult to get hoers at any price. This is now the time of year when the mode of cropping and the rotation adopted is seen to the best advantage; and as we have from time to time stated the rotation we recommended for different soils we will now state the rotation of crops grown on a farm we had in hand some years ago, the soil being a sandy loam, the subsoil varying in strength from rather strong clay to a mild brick earth. The farm consisted of 100 acres of arable and 25 acres of pasture land. We grew 40 acres of Wheat, 26 acres of Oats, 15 acres of Potatoes, 8 acres of Mangold, 2 acres of Carrots, 2 acres of Cabbage, and 7 acres of Clover. Our root crops were added to largely by sowing Turnips after the White Canadian Oats, this crop being always fit to reap before the Wheat; and in an early district we were enabled to sow a long lain of Turnips, drilling them daily as fast as the crops were cut, and completed before the corn was carried to the stack. It will be observed that the 100 acres of land, cultivated according to the before-named rotation of crops, whilst it affords 81 acres of saleable produce it gives a considerable acreage of root-produce of more or less value for the feeding of stock during the year, our object being to grow the greatest amount of saleable produce, and to maintain the largest number of valuable stock during the winter months. The men should be employed in all sorts of work which will anticipate the requirements of harvest, in order that comparatively unimportant work may not interfere with the busy harvest period.

Live Stock.—A good supply of water is of the utmost consequence for all kinds of stock, and in the absence of rivers or brooks, ponds must of course be made and kept in condition to hold water. We call the attention of farmers occupying the hill districts to our description of making ponds, with illustrations, given in these columns on May 2nd, 1878, page 346. To dairy cows access to water is extremely important, perhaps more than any other stock; nevertheless, sheep require water in the hill districts, especially where they are not receiving succulent food, such as Vetches or Rape, and only feeding on old leas or down pastures. We must again call attention to the summer management of sheep, for we have recently seen a flock of 150 or more all huddled together under a tree at the side of a canal bank, and where they were allowed to remain for six or seven hours, and of course leaving both the dung and urine where it could do no good. This brings to our mind the plan we have previously named in these columns—our practice of folding the sheep during the day from ten o'clock until four in the afternoon upon the arable land, giving them a fold of green fodder early in the morning, and allowing them to graze on the Saintfoin or Clover leas or pastures and parklands during the night. Where some such plan is not adopted a serious loss of manure must be the result. It should be borne in mind that one of the principal objects of feeding sheep ought to be considered—that of manuring the land, especially of the outlying and hill districts. We address these observations also to the home farmer having parklands under his care, because where there are spreading trees the sheep are sure to resort to them for shade, and under such circumstances the manure must be totally lost.

VARIETIES.

COMMENCEMENT OF HARVEST.—Winter Oats are being cut on a farm at Datchet, and with a continuance of the present splendid weather harvest operations will soon become pretty general in the home counties of Middlesex, Berks, Bucks, and Surrey. All the cereals are looking well, but the root crops greatly require rain. A Sussex correspondent informs us that the corn is ripening rapidly, and that the cutting will commence in many places this week; and next week, if the present fine weather continues, the harvest will be general. The corn is generally short in the straw, but the yield is expected to be better than that of last year.

— GROUSE IN THE HIGHLANDS.—Grouse prospects in the West Highlands are reported as favourable. Coveys are numerous and healthy, though young; birds as a rule fully a month behind last year. The weather during the past week has been wet and drenching, but the birds have had capital shelter. Most of the moors in the west are already let.

— GRASS CULTIVATION.—The Prince of Wales had his special attention directed by Lord Leicester to the production of grass in growth exhibited by James Carter & Co. at Derby. Messrs. Carter explained to His Royal Highness that the grass was sown on June 2nd, mown for the first time June 20th, and since mown six times in a period of about three weeks. This is admitted to be a most marvellous result, and His Royal Highness expressed his approbation of the exhibit.—(*The Daily Chronicle*.)

— THE DERBY AGRICULTURAL SHOW.—We are requested to state that the winners of the prizes recently awarded by the Royal Agricultural Society at their Derby Meeting for the best farms, used seeds supplied by Messrs. Webb & Sons, Wordsley, Stourbridge. For Dairy Farms above 150 acres.—First prize, 100 guineas, Mr. Geo. Bryer, Markeaton Park, Derby; 2nd prize, 50 guineas, Mr. Jno. Hellaby, Twyford; 3rd prize, 25 guineas, Mr. Arthur Stretton, Whichnor Bridge, Lichfield. For Dairy Farms not exceeding 150 acres.—First prize, 50 guineas, Mr. Alfred Milner, Alfreton. For the Best Arable and Mixed Farm.—First prize, 50 guineas, Mr. F. Price, Baynes Heath, Atherstone.

— THE ROYAL SHOW AT DERBY.—This has proved a great success so far as regards the weather and the number of visitors, the former having been magnificent and the latter very numerous—considerably exceeding one hundred thousand. The stock department of the Show was by no means equal to the previous great displays of the Society. There was a considerable falling-off in the number of horses; cattle were also represented in diminished numbers. Sheep were generally good, some of the classes being admirably filled, and pigs were seen in as fine condition as at any previous gathering. The display of implements was of great magnitude, the articles surpassing both in numbers and quality those exhibited at any past meetings of the Society.

— BRITISH BEE-KEEPERS' ASSOCIATION.—The following is the programme of arrangements for the South Kensington Show:—Tuesday, July 26th: Judging commences at 10.30 A.M., Show opens at 1 P.M.; 2 P.M., commencement of driving competition in the bee tent; 3 P.M., quarterly meeting of the Committee for the purpose of conferring with representatives of county associations; 5 P.M., Mr. Frank R. Cheshire has kindly promised to deliver a lecture—subject, "Bees as Florists, Hybridisers, and Fruit-producers," illustrated by new and original diagrams. Wednesday, July 27th: Show opens at 10 A.M.; displays of manipulations, accompanied by short lectures, given at intervals throughout the afternoon in the bee tent; 5 P.M., general meeting of the members of the Association, the Baroness Burdett-Coutts, President of the Association, in the chair. Thursday, July 28th: Show opens at 10 A.M.; displays and lectures in the bee tent throughout the afternoon; 5 P.M., distribution of prizes by Her Royal Highness the Princess Christian. All the above meetings will take place in the Committee-room adjoining the Show. Friday and Saturday, July 29th and 30th: Show opens at 10 A.M.; no displays or lectures will be given in the bee tent on these days. Monday, August 1st: Show opens at 10 A.M.; displays and lectures in the bee tent throughout the afternoon, admission 3d. Members attending the Show will be required to bring their tickets of membership, which have been forwarded to all those who have paid their subscriptions for the current year, otherwise they will have to pay for admission to the Gardens.

POULTRY AND PIGEONS

POULTRY NOTES.

ON looking through M. Lemoine's interesting work on the poultry yard we came upon a passage which seems specially appropriate to the present season. Having observed that birds which plucked out and eat their own or other birds' feathers ceased to do so upon having an abundant supply of feathers thrown down in their yard, M. Lemoine had some feathers analysed, and found them to be composed of the following materials:—

Carbon	..	..	..	..	..	..	..	..	52.42
Hydrogen	..	..	..	..	..	..	..	..	7.21
Azote	..	..	..	..	..	..	..	..	17.89
Oxygen and Sulphur	..	..	..	..	..	..	..	..	22.48
									100.00

M. Lemoine hence concluded that feather-eating was simply the result of an insufficient supply of sulphur, and he recommends that during moult a liberal allowance of flowers of sulphur be given to the birds. Some of our readers have, we know, found a few doses of flowers of sulphur an efficacious remedy for feather-eating, but M. Lemoine's experience goes to show that sulphur will in all cases facilitate moult. This seems well worth a trial.

A CORRESPONDENT of a contemporary, writing over the signature "S. H.," gives a somewhat amusing account of a variety of fowls "made" by himself with a view to checkmate the poultry thieves of the northern suburbs. Upon moving to a new house, called Hermitage, somewhere near Seven Sisters Road, he found the thieves too much for any ordinary breed of poultry. It thus "became suddenly necessary to secure a race of non-thievable poultry," and the result of some time and thought was a breed which, in "S. H.'s" own words, "may be described roughly and with a touch of the longbow as follows:—They lay all the year round, are perfectly restricted in range by a 2-feet fence, are good scratchers, good sitters, good mothers, and as hardy as any race known; they are perfectly silent, utterly invisible, and never use their wings." He called his fowls "Hermits," and professes to have spent three years in making the new breed, and three more in fining it down to a standard. "S. H." does not say whether any of the breed are still in existence, and unless it may be inferred that Dark Dorkings and Cochins had something to do with its origin, we are not enlightened as to the process of manufacture. If the whole story is anything more than a shot from the longbow, "S. H." would confer a benefit upon metropolitan poultry-keepers by informing them how the Hermits were made, and also as to their present existence or non-existence.

In this dreadfully hot weather special care must be given to

cleanliness, ventilation, and the supply of clean fresh water to the birds. Do not leave the drinking vessels exposed to the sun, but put them in some shaded part of the run, or improvise a shade for them if necessary. If there be not sufficient natural shade for the birds this should also be furnished by thatching a few hurdles with straw or other like material, and raising them a couple of feet on short posts driven into the ground. Use carbolic fluid or some other disinfectant liberally, and see that the dust bath is kept well supplied. Paraffin or petroleum rubbed into any crevices where the insect pests collect will put them to flight or exterminate them, and a good coat of white-wash will also be of advantage.

It is now time that the chickens be thoroughly weeded out. Even the later ones ought to be old enough to show their quality, and, apart from the question of space and overcrowding, which is of primary importance, it is false economy to keep over chickens which are not of high quality. The days are gone by when birds fetched high prices simply because they were pure bred. Fancy poultry are so widely spread through the country that it is only really good specimens which will command good prices; it is better, therefore, to kill off and send to the market or consume at home all the second-rate chickens. The only exceptions to this rule are the breeds which have a special reputation for laying qualities. Defective specimens of these can generally find a market at something over killing value, and an attempt to dispose of them by advertisement will usually prove successful.

FANCIERS v. FARMERS.

WHEN I wrote in answer to the article on page 23 I could not go so fully as I could have wished into the matter, I therefore renew the subject. The writer of the notes referred to says "the fancier, as a fancier, has nothing to do with the food supply." Indirectly he has. If the writer knows anything about the reason why the poultry shows were instituted he will well know that the reason assigned was for the benefit of our food supply, and the press loudly proclaimed with such inducements as the shows held forth that we soon should have much finer poultry and almost eggs to spare. Then, again, who are the fanciers? Surely not those who buy up a few well-bred birds, show them and get prizes as long as those birds last, and advertise birds and eggs from such and such a prize strain. A fancier is one who keeps anything from the pure love of it, looking to and keeping and purifying its most minute points of stated excellence and beauty. Take the Auricula, the Picotee, the Polyanthus, the Tulip, and other fanciers. Would they, any one of them, sell or part with their pet flowers? No: instead of this they will sit and gaze at them with a loving tenderness by the hour, and when they sleep dream of their loveliness, or pass sleepless nights longing for the morning to again behold them. Does anyone know such an enthusiast in poultry? If so, then dub him a fancier; but not the little dealer who would fain, as he moves in a respectable circle, be considered one, nor the man who kills the birds he ought to love by sending them from show to show until they die from sheer exhaustion through his greed for gain.

"Fanciers *versus* farmers" in poultry. How oddly it reads to one who has been among poultry all his life! *Versus* farmers! Where did the so-called fancier, the self-dubbed fancier, get his fowls from when the poultry mania arose? Why, he trotted off far and wide to the farmer for his Dorkings, also for his Hamburgs, his Game fowls, and others; and from them he started himself in business, and by the help of the press he, to the farmer's astonishment, laid down the laws for the good, bad, and indifferent of poultry breeding. Who brought the Buff Cochin into notice? Mr. Stringer, a farmer. The Partridge Cochin? Mr. Punchard, a farmer; and has there been any better shown than these two farmers exhibited? Again, Mrs. Herbert for White Cochins—a farmer's wife. Everyone knows the splendid Game fowls that were to be seen in farmyards and runs. "Yes!" will say the so-called fancier; "so far we are one. You had the Polish, the Malay, Spanish, &c. But have we not introduced the French varieties?" True, this may be: but did you do it for the love of the thing as a fancier? No! You did it for gain, became little dealers, and you know it. Hark, you farmers at what the fanciers have done for you!—made a big mongrel from your old English Dorking, and ask you 24s. a dozen for the eggs.

Why is the fancier so anxious to breed poultry pure that the farmer may have them to cross with his "common fowls?" Looking over some of the cross-bred poultry yards of late, I think I never saw a more dreary sight in the way of poultry—all sorts of form, all sizes, all colours, comb, top-knot, &c. And this is what "the fancier" wants the intelligent farmer to do. For my part I have known, and happily I do still know, a number of farmers,

and I may add intelligent farmers—so intelligent that they are not, in my opinion, likely to buy the eggs of dark-legged mongrels at 24s. a dozen, or even at 12s., of their truly disinterested kind friends the fanciers, even if it is to improve their poor white-legged delicate home-grown Dorking. There are many other breeds that the intelligent fancier has taken in hand for exhibition purposes, which, taking them as they were even twenty years ago, he cannot point with pride and say they are better, or even so good. A reporter, and also a good judge of many years standing, mentioned this to me a few days back, and he is not the only one by many who has observed the gravity of the situation. I suppose prices are going down or their little playful ways are found out, as "the fanciers" are now bidding up for the farmers to help and buy.

But the farmers are not so foolish as to spoil their stocks, when they have them, of the old true Dorking; and they know also that you cannot get flesh and eggs from the same fowl no more than you can get flesh and butter from the same cow, however much the wisecrackers of fanciers try to beguile them into a cross for that purpose. Though the old Dorking laid a fair quantity of fine eggs, still as a table fowl it was pre-eminent. The exhibition Dorking is the very worst layer I ever had.

You say, in the way of eggs "During the last few years there has been a tendency to improvement." Which way? More from abroad or from home produce? If I remember rightly, the Government return shows that the import of eggs is still on the increase.

The small farmers are asked to keep good poultry, of course the fancier's poultry. Where would he get the capital to buy it at prices now asked for it? and if he had many he would have to buy grain, &c., and then where is the profit?

Again you say, "Many of the useful qualities of a breed are doubtless sacrificed by the fancier in his efforts to attain perfection in standard points." Surely this is a misprint. Take table poultry, take the egg-producing fowl, how is perfection to be gained if you sacrifice its usefulness? I fail to see how; but no doubt the intelligent fancier knows right well.

"The best results both as regards table and laying qualities which we have heard of have been attained by taking the products of the fancier's labours, undoing the harm and retaining the good which had been accomplished, and then, regardless of fancy points, developing the useful qualities by careful selection and judicious crosses." Read this, ye farmers. What you have to do is merely to buy of the fanciers, and then use your own brains and time to undo what they have done for you. You had a good fowl, the Dorking. They have muddled it. Buy it of them, and undo their work, and restore it to its original fine quality and usefulness. No, stay; this is far better: Try with the stocks you have to make it what it once was, the king of the barndoor.

Why the man who buys a few fowls, who never kept any before, should immediately call himself a fancier and look down on the farmer who has kept poultry all his life, and probably to advantage in every sense—why that man who buys such fowls, and by the exhibition of them obtains prizes, should call himself a fancier and lecture the farmer as if he were an imbecile, is a matter beyond my comprehension, and I am sorry to say that there are others equally as dull as myself.—HARRISON WEIR.

P.S.—In the nineteenth line from the top of the second column, page 23, the word "have" should have been printed "had."—W. H.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1881.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
July.										
Sun. 10	30.094	62.0	54.2	W.	61.1	75.7	54.7	127.2	52.0	—
Mon. 11	30.215	71.3	59.0	S.	63.0	79.1	55.6	128.3	51.4	—
Tues. 12	30.039	72.7	62.6	S.	64.3	82.4	55.9	132.6	50.6	0.048
Wed. 13	30.226	67.4	59.6	W.	65.0	83.7	53.7	128.8	50.2	—
Thurs. 14	30.317	64.4	62.1	W.	65.7	87.4	57.6	132.7	53.6	—
Friday 15	30.085	80.0	69.6	S.W.	67.1	94.6	61.3	135.0	55.9	—
Satur. 16	30.058	74.7	65.5	N.	68.6	84.5	63.0	131.3	57.6	0.035
Means.	30.148	70.4	61.9		65.0	83.9	57.4	130.8	53.0	0.083

REMARKS.

10th.—Fine, bright, and warm.
 11th.—Warm, very fine; bright moonlight night. [very warm.]
 12th.—Close oppressive morning; rain for short time 10 A.M., fine afterwards;
 13th.—Fine, bright, and warm; pleasant breeze.
 14th.—Foggy generally, but fine and very warm.
 15th.—Hazy at first, afterwards fine, bright, and very hot.
 16th.—Cooler, but still very warm; fine with much cloud about; rain at 10 P.M.
 An extremely hot week, the thermometer on the 15th rising to a higher point, 94.6°, than on any occasion since observations commenced here in 1857. The nearest previous approach to it was 93.3° in July, 1868.—G. J. SYMONS.



28th	TH	Concluding Sale of Mr. Day's Orchids at Mr. Stevens' Rooms,
29th	F	Helensburgh Rose Show. [Covent Garden.
30th	S	Southampton and Liverpool Shows.
31st	SUN	7TH SUNDAY AFTER TRINITY.
1st	M	Cottagers' Show at South Kensington.
2nd	TU	
3rd	W	

WINTER AND SPRING FLOWERING PLANTS.

It not unfrequently happens when flowers abound during the summer months, that gardeners and cultivators overlook or neglect to give the requisite attention to those plants that are to maintain the supply of bloom during winter. No doubt the propagating season is a busy and important one, and many then determine to excel the supply of past years in winter. I have known cultivators who have been stimulated early in the season, probably by a visit to a neighbour's garden and seeing the rich display there, to propagate a good supply of winter plants. In spite of these exertions, as the season has advanced the winter plants have been neglected or carelessly grown, and in the end the supply is little or no better than in previous years. To achieve success in the production of abundance of choice flowers during the winter and spring, the end for which the plants are grown must be kept in view. Much intelligence and forethought are requisite from the time the plants are raised from seed or cuttings. To be seasonable perhaps no time is more important than from the present onwards if satisfactory results are anticipated. The propagation of the different kinds should have been effected before this, except in the case of a few which may be rooted now and grown with success.

Poinsettias are useful plants for winter, and the main batches should now be growing sturdily. If properly treated and well hardened they will now do without the aid of artificial heat. If grown in strong heat they invariably become excessively tall and produce only moderate-sized bracts, losing their foliage towards autumn. When grown under cool treatment they advance slowly and strongly, and retain their leaves well if removed to warmer quarters in autumn before being checked with the cold. If the final potting has not been done it should be attended to at once; 5 or 6-inch pots are large enough, and when these are full of roots liquid manure may be liberally supplied. If strong cuttings can still be obtained from the stock plants they should be inserted at once, or not later than the end of the month. They root readily if kept close under handlights or bellglasses in heat. The cuttings can be inserted singly in 4-inch pots.

Euphorbia jacquiniæflora can still be propagated, and if rooted without delay useful plants will be obtained for the front edge of the stove stage. It is advantageous to root four or five cuttings together in each 4-inch pot, as then they produce a better display than if grown singly. They must after being rooted be grown in a light position, plenty of air being

needed to ripen the wood as it is developed, as upon this depends to a large extent how the plants flower afterwards. It must be borne in mind that rapid growth is not the essential in their latter stages; weakly plants cannot produce fine bracts or brilliant flowers. Time and labour are wasted in growing many winter-flowering plants unless constant care is taken to produce well-ripened and solid growth.

Scutellaria Mocciniana I have hitherto found rather difficult to manage to produce a good supply of its fine flowers in winter. If rooted early and grown freely, pinching the shoots, they have generally failed to give me satisfaction. The finest trusses of bloom can be produced by constantly striking cuttings and growing them without check until they flower. A batch or two rooted now and grown rather quickly would prove very useful at a time when such flowers generally are scarce.

Abutilons succeed best in winter if rooted about this time. They should be inserted in 3-inch pots, to be afterwards transferred to 5-inch pots. The plants must be grown for a time in a close warm pit until established. Cultivators not unfrequently make a mistake in winter by placing the plants when in flower in too cool a structure. They thrive in cool conservatories during the summer months, but in winter the case is very different; they soon become checked in a cold house, and discontinue producing their flowers. When growing them to be of service they should not be tall to start with; thus late propagating is recommended, and if sturdy plants are produced by November not more than 9 inches or 1 foot in height they will do well. After that date a suitable temperature must be given them, when growth will continue and flowers be produced in succession for a long time. They will continue growing in a temperature of 50°, and even in the stove they grow more rapidly and produce their flowers more quickly than when placed in an intermediate temperature. It is desirable to have a batch in the stove as well as in a lower temperature, and the succession of flowers is maintained over a greater length of time. They well repay any trouble if solely grown for the stove during winter. The following are useful varieties and flower profusely in a small state—Boule de Neige, white; Marshal, reddish cinnamon; Aurelia, light golden yellow; Desboisi, Letitia, and venosum roseum, rose colour, the flowers of the latter being darkly veined; Darwinii is also useful. Such varieties as Boule d'Or grow too strongly and large before producing flowers in small pots.

Clerodendron fragrans flore-pleno is a useful autumn-flowering plant not generally cultivated. It can be had in flower in succession through the greater part of the summer as well as the autumn. Its flowers, which are white when produced in autumn, are slightly shaded with pink during the summer; they are double, and well adapted for wiring for buttonholes or for bouquets. The flowers are produced in compact heads at the termination of the shoots. When grown in 4-inch pots it is very suitable for small vases. It succeeds best when grown in small pots, and flowers freely if confined at the roots. If allowed plenty of root room it is sure to fail, as the growths are strong and soft and do not produce flowers. If the pots are plunged in tan or leaves the roots quickly enter the plunging material, and very strong growths result with quantities of young shoots from the roots outside the pots. Some time ago I gave a plant to a friend, who planted it out when he returned home. It quickly grew to an immense size, producing leaves nearly as large as Rhubarb

leaves, but no flowers. It was afterwards discarded as useless. To grow it successfully the roots must be confined in small pots, when it flowers freely and is really useful. Cuttings inserted now singly in the size of pot recommended for it, soon root and make useful plants in the autumn. *C. floribundum* is similar in habit of growth, differing only in the colour of its flowers.

Begonias of the *manicata* type, as well as *B. Ingramii*, should now be in cold frames, where they will do well for a time. If not already in their flowering pots they should be placed in them without delay. When removing such plants from frames in autumn care must be taken not to excite fresh growth. I have seen *Euphorbias*, *Poinsettias*, and others when removed from cold frames and placed in strong heat again start into rapid growth, afterwards producing only a poor supply of flowers.

Sericographis Ghiesbreghtiana is an excellent old but useful plant, producing its sprays of scarlet flowers during the dark days of November and December. This, however, depends much upon the time the plants have their last pinching. The end of August is fully late enough. When in flower this plant is at home either in the stove or in the conservatory. Although a greenhouse plant, it enjoys a little warmth in its early stages as well as in the autumn months. Where *Calanthes* are grown in quantity no better plant can be found to arrange amongst them. The fine dark foliage not only hides the bareness of the *Calanthe* pots but shows to advantage their delicate flowers. In addition the bright scarlet sprays contrast admirably with the *Calanthes*, and give to the whole a beautiful effect. Six-inch pots are suitable, and potting must be done by the end of the month. When grown dwarf this plant is suitable for room and table decoration, and for this purpose at least half a dozen cuttings should be placed in a 5-inch pot and grown together without stopping if rooted about this time. If rooted a little earlier one pinching will be sufficient.

Thysacanthus rutilans keeps much dwarfer and cleaner when grown through the summer under cool treatment. Cuttings may still be rooted and will make valuable little plants.

Plumbago rosea coccinea is a useful plant for decoration, but of no service for cutting unless wanted for one night only. It should not be propagated too early. Grow the young plants rapidly until the end of this month, when they should be finally potted, and then be gradually subjected to a ripening process afterwards. Pinching should be discontinued during the month of August, and when carrying out this operation a quantity of the tops should be rooted in small pots and afterwards subjected to the same treatment as the general stock. A number propagated late and grown together in small pots are valuable to stand near the edge of stages in warm plant houses. It is surprising what can be done even with late propagating with a number of suitable plants to render the houses gay and attractive during the winter months.

Zonal *Pelargoniums* are the most useful and brilliant plants we possess for flowering during the winter and spring months, and when these are grown well not even that most popular of flowers the *Chrysanthemum* can equal them. When staged side by side the *Chrysanthemum* is dull in comparison with the *Pelargoniums*. Many still contend, in spite of all that has been written in their favour of late, that they will not do well in the north. That this is the greatest fallacy that can be conceived is proved by the fact that there are many northern gardens where they succeed grandly. They are, perhaps, more easily grown and more accommodating than any other class of plants grown for winter decoration. All the attention they require after frost is past is being placed in their full-size pots, hardened off and placed outside on ashes all summer until the approach of frost, watering when necessary, stopping the shoots, and removing the flowers and bad leaves as they appear. If it is desirable to increase the stock of any good kinds it can still be carried out. No better system can be adopted than placing a number of cuttings in each pot and allowing them to grow together, as they make good plants quicker than if grown singly when late propagation has to be resorted to.—WM. BARDNEY.

SHRUBS FOR A TOWN.—Can any of your numerous readers give me the name of an evergreen most likely to succeed well as a

hedge in an elevated and moderately exposed situation (facing south) in the outskirts of a rather smoky town? Soil a good sandy loam and well drained, as well as an extra depth. Elevation above sea level 600 feet.—LANCASHIRE.

PREPARING FOR WINTER.

(Continued from page 524, last volume.)

CARROTS.

THERE are certainly but few people who do not relish young Carrots. That these can be had with but little trouble all the year round is well known to the majority of professional gardeners, but a few hints on the subject may be of service to amateurs. The owners of small gardens ought really to grow small breadths of Carrots, and one variety only—viz., the Nantes Horn. About four sowings to be made during the year, the first on a warm border in January or early in February, the next early in April, the third and the largest sowing either late in June or early in July, and the last about the middle of August. The produce of the two former sowings will be available during the summer and early autumn months, and from the two latter delicious Carrots may be drawn throughout the winter. It is very probable that the present system of growing Carrots will eventually be changed, especially where the spring-sown crops are usually damaged by the maggot or fail to keep well. I know two large gardens where these difficulties have been met by sowing the principal crops in July, thereby securing a supply of roots very superior in every respect. Some of the cleanest and best Carrots exhibited at some of the late autumn metropolitan vegetable shows were July-sown Nantes Horn. Another advantage of this system is, it admits of a crop of early Potatoes being taken off the land prior to sowing Carrots. During most seasons roots large enough for all ordinary purposes may be obtained by sowing seed at the present time in succession to early, and in our case to second early Potatoes. The late extremely hot weather has been very unfavourable to seed-sowing, but it has had the effect of rapidly maturing the Potato crops. These, with the exception of the Scotch Champions and Magnum Bonum, and which I am pleased to state are in the fields, will be cleared off early, and after the first good soaking of rain the ground will at once be planted with vegetables for the winter. Where the ground is somewhat moist when the Potatoes are lifted it is levelled as the process goes on, being cleared of rubbish, trodden, and raked over. The drills are then drawn, and a few hours prior to sowing are soaked with water, this being preferable to watering after the ground is levelled over the seeds. As the Carrots do not make much top growth the drills may be drawn 9 or 10 inches asunder, and the seedlings thinned to about 2 inches apart. The roots should only be pulled as required, otherwise they will shrivel and lose that sweetness for which they are much prized. To be able to draw them at all times, part of the bed may be covered with litter whenever severe frost is anticipated.

LETTUCE AND ENDIVE.

The ground having been quite cleared of Potatoes no time should now be lost in sowing the seeds of these invaluable salads. The former from this date will not attain to a great size, but they will form crisp hearts suitable for mixing with the more blanched Endive. Lettuces obtained from seed sown earlier in July are sometimes the best for lifting and storing in frames; but this season, owing to the warmth in the soil, those sown at the end of July or early in August may form hearts before frosts are experienced. The remainder of the seed of the *Cos* varieties may be sown, and with these seed of All the Year Round and Hardy Hammersmith Cabbage varieties, in rows about 10 inches apart, and thinning out the seedlings to about 8 inches asunder. To secure plants to stand out during the winter (these being for the earliest supply next spring), sow seed on a warm border about the third week in August and again early in September, this precaution being taken in order to be certain of rather small plants which only are really hardy. It is advisable to prick out a few plants where they may be covered with handlights or a frame, as those in the open are liable to be destroyed by birds and slugs. Hicks' Hardy White *Cos* and the Black-seeded Brown *Cos* have proved hardy and good; and of Cabbage varieties at present I give the preference to the Hardy Hammersmith, Suttons' Commodore Nutt, and All the Year Round.

When good Lettuce can be had Endive is not so much required, at the same time it much improves the appearance of a salad, and for that reason is grown and sent to the London markets especially as much as possible throughout the year. The principal and most valuable crop, however, is that obtained by sowing at the end of July and early in August. The Moss Curled is very good for the earliest sowing, as it is close-growing and blanches quickly, but is the most tender variety. The rows of these may be disposed

about 10 inches apart, and the seedlings be thinned to the same distance. The Green Curled is a hardier variety suitable to succeed the Moss Curled, and for the latest supplies Improved Round-leaved Batavian is invaluable. These, being stronger-growing, should be disposed about 12 inches apart each way. But little blanching is required in the case of the Moss Curled. A slate or board laid over them, or flower pots inverted over them, will soon effect this. The larger varieties may be tied up with matting in the same way as Lettuces are sometimes tied. Neither variety is really hardy, and for this reason these and all full-grown Lettuces should, before severe frosts are anticipated, be lifted and stored away in cold frames. To facilitate the operation of lifting, lightly tie up the leaves, and this will also admit of the plants being packed closely in the frames. Old Cucumber and Melon frames are suitable for this purpose, and the plants should be lifted with good balls of earth during dry weather, brought off the ground with a handbarrow, and be firmly packed in the moist rich soil. Should the soil in the frame be dry water the plants as the lines are worked in, after which little or none will be required. Keep the plants dry overhead, give air freely night and day whenever possible, and cover the frame with mats or other material during frosty weather. Blanch a few plants of the Endive at a time, which is done by simply tightening the ties. Mice are apt to be very destructive among Endive, and last season after a long severe frost I had the mortification of uncovering a frame containing nothing but heartless specimens. A few of the least injured were rubbed over with phosphorus paste, and this proved fatal to their enemies.

LEEKS.

Although I have grown Leeks for a considerable time I never thoroughly appreciated them till last winter. Not only were they the only really hardy vegetable grown here, but the severe frosts appeared to improve their quality. Fifteen hundred Leeks will be grown here, and in all probability none will be wasted. If large Leeks are required they may be grown in trenches in much the same fashion as Celery, as they delight in abundance of manure and moisture. For ordinary purposes they may be at once dibbled in deeply dug and well-manured soil. In one case a long east border is devoted to them. The rows running lengthways of the border are from 15 to 18 inches apart, and with a blunt dibble holes 8 or 9 inches asunder, 6 inches deep, and 3 inches in diameter are made. The plants obtained in the open ground from seed sown in March are dropped into the bottom of the holes, a small quantity of soil is placed over the roots, and watered in. Unless the soil is unusually stiff no earthing-up in order to blanch the stems will be required. The Musselburgh is the variety grown here.

TURNIPS.

Seed of these may also be profitably sown immediately after the ground is cleared of the early and second early Potatoes. For the earliest supplies Suttons' Snowball and Carter's Jersey Lily are suitable, and to follow these Veitch's Red Globe and the Chirk Castle Black Stone. All will keep sound in the open during ordinary winters, but it is, perhaps, advisable to pull and store a quantity of the three former in case of another severe winter. The last-mentioned and the Green Round are very hardy, and should be sown in good proportions, especially if greens are desired in the spring. Make the soil firm previous to sowing, dispose the drills about 15 inches apart, and thin out the seedlings before becoming drawn to about 12 inches apart.—W. IGGULDEN.

(To be continued.)

NOTES ON CAMELLIAS.

As Camellias are treated in summer so will they bloom in winter and spring. If badly managed and neglected now, the best attention when they are about to bloom will never produce a good supply of flowers. We are always most particular about our plants when they are making their young wood, and after that they are left very much to themselves, the only attention they receive being to keep the leaves clean and the roots moist. Camellias in the best of health must never be neglected when growing freely, and those in a sickly condition can only be restored to health in the season when growth takes place. This applies equally to plants in pots, boxes, planted out in the conservatory, and in the open air, in all of which ways Camellias deserve to be extensively grown. To stimulate their culture more extensively much need not be said here. We have no fear that Camellia culture will not extend fast enough, but we are not so sure that it is always carried out in the best manner possible. Many have a grand show of blooms at one time, but the great object is to have them in succession. A great number of plants are not wanted to secure this.

From half a dozen plants we gathered blooms from the beginning of November until May last, and when they can be had like this they are by far the most useful plants in our gardens. The plants we refer to are good-sized specimens planted out chiefly in a conservatory bed, and each one supplies bloom for two months or more. Indeed there are one or two which we generally cut from at Christmas, and again at Easter.

Respecting the best mode of growing Camellias, the planting-out system may be regarded as the best. In this way plants soon become fine specimens, and the growth and bloom they produce are much more luxuriant and abundant than when confined to pots. The proper time for planting out is just when they are beginning to grow. Sometimes this may be very early in spring, in other instances very late; but late or early, when they reach the state we have indicated is the time to plant. When planted at first they are sometimes a little slow in making much growth, and on this start depends their immediate and future well-being. When growth has fairly commenced there is little danger of a stop afterwards, and for this reason care should be taken to place suitable material near the roots at first. As they extend outwards they appear to thrive in almost any kind of soil. Some of our bushes, which annually produce thousands of blooms, have their roots in a peculiar indescribable soil. Of late years we have seen Camellias do very well with no liquid supply but pure water, and many cases of weakness are attributable to insufficient water at the root. It has been stated that as soon as the flower buds of Camellias are visible water should be withheld for a time, or large quantities of it might cause the buds to form fresh growths. This may be so, but no harm will result. Some of our plants make second growth, and these second growths set their buds later than the first, and an excellent and long succession of bloom is the consequence.

When the plants are starting into growth it is good to syringe them once or twice on every bright day; but as the leaves become well developed and the buds formed this need not be continued unless the plants are very dirty, and then one thorough good sponging and brushing will be far more satisfactory than a number of sprinklings. It is bad practice to allow the plants to remain always in a half-dirty state, but very often this condition is produced by defective root-action and injudicious watering. In pots Camellias require more attention than when planted out. When the roots are confined to a small space soil must be good, watering particularly well attended to at all times, and even then there is always danger of the soil becoming too dry.

Many who have large specimens in pots are afraid to plant them out, as it is the impression that nothing but very small plants will bear transferring from the pots to a bed. Our experience is different from this. No longer ago than last March one of the largest Camellias we had in a box about a yard square was planted out, and the young growth made since then is both abundant and healthy. As this plant stood outside all winter and had its leaves very yellow we almost despaired of its recovery; but we shall not be in a dilemma of the kind again, as, although the plants may assume an unhealthy colour when wintered in pots and boxes in the open air, they do not appear so when planted out and established. Their appearance then is highly pleasing, and it is surprising that Camellias are not more grown in the smallest as well as the largest collections of evergreens. It would be interesting if your readers throughout the country would plant at least one in the open air, and watch and record the result.

Once or twice previous to this we have objected in these pages to shading Camellias at any period of their growth, and although my views on the matter were not generally accepted, we still from experience think we are right. The finest of our young Camellia wood has been grown so close to the glass that it touched it in many instances; but shading from the sun has never been done, nor was there any need for it, as the leaves never showed the least signs of being injured: on the contrary, they have attained a rich dark glossy green colour which might have been looked for in vain in the shade. Those who begin shading their Camellias when the growths are most tender must of course continue it; but it would be better if it never was begun, and plants in pots require it no more than those planted out if well attended to.

It is generally understood that the Camellia will not submit to be forced into bloom at a stated time. At flowering time this is true, though it may be forced to have it early in bloom; but it is in the spring and summer this must be done. Secure early buds, and the early forcing is done at the same time. Previous to the buds being formed Camellias will bear a high temperature, and for a time after the buds are visible, but after they are half swelled artificial heat does no good and should be withheld.

As to whether it is best or not to place Camellias out of doors in the autumn there are many opinions. As a rule they are best outside, providing they are well attended to with water. Plants,

however, which have been growing in the shade must be taken out with the utmost caution, or all previous care in this direction will be lost. At first such plants should be placed in a shady position, such as behind a north wall; but here they must not remain long, and under all circumstances the sooner they can be made to endure exposure to the sun the better will they bloom during the short days.—J. MUIR, *Margam*.

WATERLOO, SEAFORTH, AND CROSBY HORTICULTURAL SOCIETY.—JULY 20TH.

THE above Society held their sixth annual Show of fruits, flowers, and vegetables in the spacious houses belonging to the International Marine Hydropathic Establishment. The Show on the whole was very good considering the prizes offered were small and not sufficient to bring distant exhibitors, and in consequence the exhibits were principally from local growers. One of the main objects of this Society at the present is to encourage amateur cultivators who do not keep professional gardeners, and also cottagers, to grow and show window plants and vegetables. In the classes devoted to both amateurs and cottagers the exhibits were very creditable indeed, and much superior, especially the window plants, to what we have seen staged at many other similar exhibitions. The day was fine, and judging from the number of visitors the Exhibition financially could not fail to prove a decided success, and we hope as the Society prospers the Committee will give more encouragement to the two classes of exhibitors referred to.

In the class for stove and greenhouse plants in flower Mr. G. Brown, gardener to E. K. Musspratt, Esq., Seaforth House, was the successful exhibitor, and staged a good *Plumbago capensis*. Mr. E. Taylor, gardener to C. Crosfield, Esq., obtained the highest honours for foliage plants, and was very successful throughout the Show. *Caladiums* were staged in very good condition by Mr. Jones, gardener to C. Clark, Esq., the same exhibitor being also first for stove and greenhouse Ferns. A good *Adiantum cuneatum*, over 3 feet in diameter, was exhibited by Mr. J. Edwards, gardener to B. Gibson, Esq., and obtained the first prize for a single specimen. It is scarcely necessary to say hardy Ferns were shown in good condition when we state that most successful exhibitor of these plants, Mr. C. Ryland, took the lead. The Balsams were shown in fine condition, also the Tuberous Begonias, which were well flowered and remarkably strong, Mr. T. Jones being the successful exhibitor in both classes. *Coleuses* was very well represented, and some creditable plants were staged by Mr. Perry, gardener to T. Etty, Esq. The Fuchsias, especially those contributed by Mr. R. Smith, gardener to J. C. Hall, Esq., were well bloomed and very good plants. Mr. Ryland took the lead for Zonal Pelargoniums, followed closely by Mr. Clarke. The model flower gardens were a great feature in the Show, and attracted considerable attention.

Small fruits were shown in large numbers, but in other classes the competition was not large; Mr. Wilson, gardener to E. J. Reynolds, Esq., West Derby, was awarded the first prize with a nice dish of Black Hamburg Grapes and a good dish of Royal George Peaches. Mr. Woollam and Mr. G. Brown took the remaining prizes, the former showing very fair Grapes and a good dish of Violette Hâtive Nectarines. Mr. Wilson was again first for two bunches of Black Hamburg Grapes, the bunches not large but well coloured. Mr. W. Whitty, gardener to J. W. Cookson, Esq., second with Alicantes. For two bunches of white Grapes Mr. Harrison, gardener to E. F. Hollies, Esq., was first with Foster's Seedling, and Mr. Wilson second with the same variety.

Vegetables were very well and numerous shown, especially in the single dishes, such as Potatoes, Cucumbers, Turnips, Peas, and others; some of the principal prizetakers being Messrs. G. Brown, Woollam, W. Birch, H. Hayward, Maughan, Green, Bower, Jaiger, Holmes, and Smith.

Miscellaneous Exhibits.—Messrs. R. P. Ker & Sons, Aigburth Nurseries, Liverpool, contributed a large and very effective collection of plants, which added materially to the attraction of the Exhibition. It included well-coloured *Crotons*, such as *Maculatus*, *Andreanus*, *Baronne de Rothschild*, and others; all the newest *Dracenas*, *Coleus*, *Palms*, *Bouvardias*, *Zonal* and choice *Regal Pelargoniums* intermixed with Ferns, *Nertera depressa*, and others. Messrs. James Dickson and Sons had a good box of herbaceous cut blooms and Roses, having fine blooms of *Camille Bernardin*, *Duke of Connaught*, *Beauty of Waltham*, *Pierre Notting*, *Elie Morel*, *La France*, *Comtesse de Serenye*, and others. Mr. Henry Middlehurst, seedsman, &c., Liverpool, showed some very fine well-shaped Cockscombs with a few other small decorative plants, Mr. Holmes staging a collection of Potatoes. No attempt is made to give a full report of all the various exhibits, time only permitting a brief sketch of a few of the principal.

BARTONIA AUREA.

THE *Loasa* family is an interesting one, especially to botanists, but it includes several plants that well deserve the attention of cultivators who can only afford to regard the utility of a plant in a decorative point of view. Some of the *Loasas* themselves, despite their unpleasant armature of poisonous glands, are by no

means devoid of beauty, but among their allies few if any surpass in brilliance of colour and showiness of flowers the Californian annual, *Bartonia aurea*. It is aptly termed the Golden *Bartonia*, for the flowers possess that rich yellow tint in perfection. The individual blooms are of sufficient size to render them conspicuous, and, moreover, so open when fully expanded that the whole form and colour are seen to the best advantage. When the sun is shining upon them they are especially brilliant, and even a small bed is almost dazzling in its effect, suggestive of a race of *Buttereups* with gigantic flowers very little less glossy than the commoners.

The plant appears somewhat partial to a moderately damp



Fig. 14.—*Bartonia aurea*.

situation—not that it will endure much stagnant moisture, but it will certainly not thrive in a very dry position. England is indebted to the collector Douglas for this among so many other plants, and the first examples grown in this country flowered at the Royal Horticultural Society's Gardens forty-five years ago, so that it is far from being a new friend.

DIFFICULTIES IN GRAPE-GROWING.

As a Grape-grower I shall long remember Monday the 4th inst. In a house of Black Hamburgs, a lean-to 20 feet long by 10 feet wide, every bunch on the upper half of the rods was badly scalded. The front sashes are 3 feet deep and one-half of them open. The top ventilators are at each end—that is, the triangular pieces under each end of the roof open to the depth of 2 feet. These have been half open all night since the 1st of June, and on the day in question were, with the front sashes, open to their full extent; also, as the most forward bunch had commenced colouring, syringing had been discontinued a week before. Can any of your readers help me with advice how to prevent this in future? It seems absurd to think of shading *Vines*. The late Mr. Rivers mentions in one of his books, "that Grapes can bear any amount of sun beat." Perhaps some may feel inclined to attribute it to insufficient top ventilation; but I fail to see that, considering the house has been in precisely the same state for the last fifteen years without any scalding taking place. Strange to say, in

another lean-to house 14 by 8 feet, with the same due south aspect, one of the same range, and in the same border, there was not a single berry scalded. It is built from directions in one of Mr. Rivers's books with only a 6-inch board, opening the whole length in front and immediately under the glass at the back. The only difference in the two houses is that the former has the dwelling house for a back, while the latter stands alone with a 9-inch wall for a back, and that the Grapes in the former were a fortnight in advance of those in the latter. Both houses are without fire heat, with exactly the same aspect and border, yet in that standing alone the Grapes are always a fortnight or more behind those in the other. Would building a stable or coach house at the back make the Grapes as early and as fine as those in the other house? For besides being later, neither bunches nor berries are nearly so large. I may add the smaller house is only 8 feet high at the ridge plate, while the larger is 12 feet, the former of course having a sunken path.—JACOB ROBINSON.

NOTES ON PELARGONIUMS.

PELARGONIUMS have well repaid cultivators for the attention bestowed upon them, and a great improvement has been effected. They were originally introduced from the Cape, and were some time in the country before much was done in the way of hybridising and raising seedlings. Many of the original species were very peculiar in colour and shape of the leaves, and variously scented. The raising of varieties of distinct colour and regularity of shape has been a continual success. No plant has yielded more freely to the skill of the horticulturist than the Pelargonium, and, what appears strange, those hybrids have retained certain characters which keep them in somewhat distinct sections. For instance, the large-flowered or Show section, the Fancies, the Zonals, the Ivy-leaf, the scented-leaf section, the Oak-leaf and Unique sections. These sections do not appear to cross with each other very freely, but I am convinced they will do so if the proper means are applied. Some fifty years back it was not the custom to cut them down every year, and plants might frequently be seen from 10 to 12 feet high, and they were very showy among tall plants in the conservatory. At that time there was a moderately good collection of hybrids, but very different in shape and marking of the flowers to those of the present day; the petals were long, narrow, and the colours run and very much pencilled.

Amongst the early raisers of seedlings were Gaines of Battersea and Dennis of Chelsea. Each, having a good collection of Cape introductions, commenced hybridising in a somewhat promiscuous manner by simply placing the original species among the hybrids and sowing all seeds that were produced. They were successful in producing many good and showy varieties, one of which, Gauntlet, has not been surpassed to the present day for forcing and cut flowers, and has been of great value to growers for the market. I could name many old varieties that were deserving of being retained on account of some desirable characteristic they possessed. For instance, the Yarborough for vases in the open ground has never been equalled for its floriferous habit. It has been the fashion to obtain large flowers of regular outline and distinct markings, and the raisers have succeeded in a remarkable degree. Great praise is due to the florists for what has been done, yet there remains a wide field for enterprise. There are many colours in the genus that require to be brought forward, such as yellow, green, and that exquisite orange maroon that we see in *P. ardens* major, also that distinctness of *P. tricolor*; and it would be desirable to introduce scarlet into the large-flowered varieties, and the Unique section with its unequalled colours deserves attention. I think a section of selfs would be desirable, and the flowers of the scented section could be greatly enlarged and diversified in colour. The Ivy-leaf section remained for years with only the white and pink. Now we have a marked improvement, including doubles. The continental nurserymen have done much in introducing doubles and fringed edges, which are improvements on one of our old favourites, *Dr. André*, which is still in cultivation.

Considering what has been done there is yet a great prospect of reward if hybridisation is carried out in a judicious manner, respecting which I will say a few words. The plant you intend to produce seed should have the stamens carefully removed a day or two before the pollen is ripe, then introduce pollen that is perfectly ripe and dusty. The brighter the day the better for the operation. Keep the house warm, exclude insects, and there will be a chance of success. As a proof that the sections will cross I must adduce the fact that it has been done. An old hybrid, Moore's Victory, was a cross between the Oak-leaf and the scarlet, and had scarlet flowers; Lady Mary Fox was a cross between the large-flowered and the scarlet, and also had scarlet flowers; also Princess Victoria, another cross with large scarlet flowers, but all attempts to propagate it failed. It is a matter of consideration

how far a plant must be removed from the original before it will assume the character of a species by reproducing itself from seed, but we have these characters in Christine, which is the leader of a section with soft leaves and pink flowers, which I suppose must have been derived from the peppermint-scented, as no other has leaves of that description. Zonals with various-coloured leaves have multiplied to an almost unlimited extent. Some Pelargoniums have the quality of not shedding their flowers, which renders them very desirable for cut flowers. Plants which have a bad habit may be greatly improved by proper cultivation, as may be seen by the productions of growers who make a speciality of some particular variety.—R. C.

CULTURE OF THE LOQUAT.

SOME weeks ago an excellent woodcut of the Loquat fruit was published in this Journal, and perhaps in further reference to the culture of this plant the following extract from an article written by Mr. Donald Beaton, which appeared in the *Cottage Gardener* thirty years ago, may interest some readers:—"Then there is the Eriobotrya, or Loquat, another Applewort closely allied to the Photinia, which is all but hardy about London, and quite so in the south-west of England. I have had it stand many a hard winter in Herefordshire after grafting it on the common Thorn, but I think the Quince would make a more natural stock for it. I think the fruit of it is called Japanese Medlar, and Loquat by the Chinese. At any rate we had a beautiful dish of this fruit exhibited the other day in Regent Street from Mr. Tillery, gardener at the Duke of Portland's; but, although our teeth watered to be at them, we could not taste them because we had no orders, and we are very particular about such fruits as are sent in this way. Any fruit is quite safe in our hands, but in this instance I could see very plainly that the lecture about these Loquats set the teeth on edge. Mr. Tillery sent an excellent account of how he managed to bring this fruit to table. It is thought a good deal of coming in in succession early in the spring when other fruits are getting scarce. The trees are uncovered in the summer, as they might be under Mr. Rivers' orchard house plan. In September they come into blossom, the glass is put on, the temperature got up to stove heat after a while and kept so through the winter, and the result is a fine crop of fruit early in the spring. These Loquats look very much like small Apriots. I fruited them myself once, but it was on the cold system, as at Walcot, and we did not think much of them—hence my desire to taste them now to know the difference, for I can easily conceive how the high winter temperature must improve the flesh and flavour. On the cold system I can vouch they are not worth growing in England, except for curiosity."—AN OLD READER.

SUTTON COLDFIELD ROSE SHOW.

SITUATED near the metropolis of the midlands, and having a Crystal Palace and Pleasure Grounds, Sutton Coldfield was considered a suitable place for an exhibition of the Rose. A liberal schedule was therefore prepared, principally by the Rev. J. A. Williams, who has laboured indefatigably in the undertaking, and the high esteem in which he is held by rosarians ensured their support. The result was a very excellent and successful Show on Friday last. A capacious marquee about 150 feet long was devoted to the Show, a central table and side tables along the margin of the tent being nearly filled with the boxes. The centre of the principal table was furnished with *Dracenas*, *Acers*, &c., and a shelf in front of the boxes and below them enabled the Rose boxes to be masked by a fringe of Ferns, &c., hence the tent had a rich and picturesque appearance. The plants were supplied by Mr. Gough, the able garden Superintendent of the Crystal Palace Company, and the Show was arranged by Mr. William Dean. The day was dull yet dry—just the weather for keeping the blooms fresh, and fresh they were and beautiful. The dark Roses were unusually brilliant, the colours being most intense, while the Teas were of unsurpassed loveliness. The class for eight varieties of these in triplets was an experiment, justified by the results, and the effect of the boxes of Messrs. Mack, Prince, and Mattock entranced the visitors.

In the nurserymen's class of forty-eight single trusses the Cranston Company were decidedly in advance of their rivals, and added one more to their long list of honours. The blooms were not so large as we have seen from Hereford, but were firm, compact, fresh, and bright. Jean Cherpin was conspicuous by its broad purplish petals, and was much fuller than is usually seen. The largest bloom in the stand was Madame Charles Wood; and very fresh and beautiful were Duc de Wellington, Duchesse de Caylus, Fisher Holmes, Marie Rady, Le Havre, Madame Victor Verdier, Alfred K. Williams, Mrs. Jowitt, Xavier Olibo, Emilie Hausburg, Mons. Etienne Levet, and Louis Van Houtte. The light-coloured flowers were not equal in merit to the darks; the best were Comtesse de Serenye and Madame Gabriel Luizet—a beautiful bloom of a distinct and charming Rose. Duchesse

de Vallombrosa, Baronne de Rothschild, La France, and Madame Lacharme were in fairly good form, and Maréchal Niel bright. Mr. Frettingham, Beeston, Notts, was second with smaller blooms, but the darks were remarkable by their brightness, and the lights were fresh and clear. Mons. E. Y. Teas, Louis Van Houtte, and Jules Chrétien were the most noteworthy blooms. Messrs. Davison and Co., Hereford, were third with generally larger examples, some being very good, others rather rough and defective. Three other collections were staged in this class. In the class for twenty-four blooms Messrs. James Dickson & Son were placed first with charmingly fresh and clean flowers well relieved by the foliage. The finest bloom in the stand, if not in the Show, was Louis Dore, bright carmine in colour and very full. Comtesse de Serenye was of remarkable excellence, as were also A. K. Williams and Marie Baumann, while Senateur Vaisse, Ferdinand de Lesseps, Pierre Notting, and François Fontaine were very good—a rich stand, the light blooms being few and not generally of great merit. Messrs. Perkins & Sons, Coventry, and G. Prince, Oxford, were placed equal seconds, the Coventry blooms being generally the most level and compact; but a few in the Oxford stand, notably Devienne Lamy, Charles Lefebvre, and Fisher Holmes, were of extreme merit. Messrs. Jefferies & Sons, Cirencester, were third with a good stand, which contained a grand bloom of Mabel Morrison. Six collections were staged in the class for sixteen distinct varieties, three trusses of each, the Cranston Company, Mr. Prince, and Messrs. Davison & Son securing the prizes in the order named. The first-prize collection was magnificent, the second fresh and beautiful, and the third good, as also were the stands of Messrs. Perkins, House, and Jefferies, which would have been in the prize lists in an ordinary competition.

In the amateurs' class the silver cup for thirty-six blooms was won by the redoubtable Mr. Jowitt. The blooms generally were of great excellence, the darks brilliant in colour, and the lights fresh and clean. Reynolds Hole, Marie Baumann, A. K. Williams, Jean Liabaud, Marie Rady, Comtesse de Serenye, La France, and Alfred Colomb were the finest blooms in this stand. Mr. Charles Davis, Anyhoe, Banbury, was an excellent second with larger flowers, some of which were very fine, but others, on the contrary, had lost their freshness. Third honours went to the Rev. H. W. Watson, Berkswell Rectory. Mr. Jowitt was first with eight triplets, but the blooms were not equal to those in the preceding class. Six highly meritorious stands were staged in the class for twenty-four blooms, Mr. Jowitt easily securing first honours with almost faultless specimens, nearly all of them being of good form and great substance, while the colours were all that could be desired, Duc de Wellington, Exposition de Brie, Senateur Vaisse, and Emilie Hausburg were superb, and La France and Baronne de Rothschild were amongst the best of the light varieties. Mr. Davis and Mr. A. Evans, Marston, Oxon, had the remaining prizes in the order named with stands of very equal merit. Some good stands were exhibited in the class for twelve blooms. Mr. A. H. Griffiths, Edgbaston, secured the first position with blooms of considerable merit, most of them being very good but staged rather too low. Souvenir de Spa was brilliant in this stand. Mr. Julius Sladden, Evesham, was an excellent second with smaller and very fresh blooms excellently arranged. Mr. Griffiths was also first in the local amateurs' class, apparently being the only exhibitor. A class was provided for exhibitors who did not compete in the foregoing classes, and Mr. G. H. Fewkes, Erdington, Warwickshire, Miss Watson-Taylor, and Mr. Walters, Burton-on-Trent, were awarded the prizes in the order named. All the stands were very fresh and the flowers admirably staged and a credit to the exhibitors.

Mr. Jowitt secured the first prize for twelve English-raised Roses with Beauty of Waltham, Duke of Edinburgh, Penelope Mayo, J. S. Mill, Peach Blossom, Lord Macaulay, fine; Sultan of Zanzibar, rich; Royal Standard, Reynolds Hole, General Evelyn Wood, and Duke of Connaught. The same exhibitor also secured Mr. G. Paul's prize for six Cheshunt-raised Roses with Princess Mary of Cambridge, Reynolds Hole, Sultan of Zanzibar, Mrs. Laxton, and Duke of Connaught.

For twelve blooms of any yellow Rose the prizes went to Messrs. Prince and Mack, both staging Maréchal Niel very fresh and rich. For twelve of any pink Rose Messrs. James Dickson & Co. were first with Comtesse de Serenye, Mr. Jowitt second, and Mr. Prince third with the same variety; the other varieties staged were Baronne de Rothschild and Marguerite de St. Amand. For twelve of any rose-coloured Rose Mr. Prince was first with Souvenir de Mons. Boll, a large flat flower of the Paul Neyron type, but richer and very imposing. Messrs. Cranston & Co. were second with Marquise de Castellane, very good; and Mr. House, Peterborough, third with Mdle. Marie Verdier. For twelve of any dark Rose Mr. Jowitt was first with a splendid stand of Devienne Lamy, Mr. Frettingham being an excellent second with Marie Rady, and Messrs. James Dickson & Son third with Marie Baumann. This section of the Show was much more interesting than if the competition had been in the usual manner, for stipulated varieties.

TEA ROSES.—Fine as many of the stands were in the preceding collections the Teas surpassed them if possible, and it will not be too much to say that they formed the finest show of the year of these beautiful flowers. The class for eight triplets was a decided success, so fresh, fine, and level were the blooms. Messrs. Robert Mack and Son, Catterick Bridge, Yorkshire; Mr. Prince, Oxford; and Mr. Mattock, Oxford, were the winners respectively, all staging most beautiful stands. The Yorkshire stand contained Madame Hippolyte

Jamain, Reine du Portugal, and Comtesse de Nadaillac, all splendid; while very fine indeed were Marie Van Houtte, President, Jean Ducher, Maréchal Niel, and Souvenir d'un Ami. Mr. Prince staged Marie Van Houtte, Souvenir de Paul Neyron, Perle des Jardins, and Madame Lambard in superb condition; and Mr. Mattock's blooms were very clean. For twelve single blooms Mr. Mack and Mr. Prince were placed first and second respectively with beautiful stands, Mr. House and Mr. Mattock being equal thirds. The Peterborough stand contained a fresh bloom of Reine Marie Henriette. Mr. Mack staged a magnificent Anna Ollivier, and Mr. Prince had Marie Van Houtte almost equally fine.

In the amateurs' class for a stand of twelve blooms Mr. Davis was an excellent first with a superior stand comprising Catherine Mermet, splendid; Maréchal Niel, Jean Ducher, Perle des Jardins, extra fine; Souvenir d'un Ami, Madame Camille, Madame C. Kuster, Souvenir d'Elise Vardon, Marcelin Rhoda, Comtesse de Nadaillac, Madame Hippolyte Jamain, and Madame Lambard. Miss A. Evans, Marston, Oxford, had the second prize with a creditable stand. In the class for six Mr. Mawley, Croydon, was clearly first with excellent blooms, but too thinly staged, and their appearance was marred by the great display of brown moss; Miss Watson-Taylor, Headington, Oxon, had the remaining prize with fresh and clean blooms.

Prizes consisting of a pair of silver fruit stands value eight guineas, a silver cup value five guineas, and another cup value three guineas, were provided for groups of plants arranged for effect, the space not being limited. The first prize was secured by Mr. Hans Niemand (Mr. Spinks, manager) for a group covering a space of nearly 300 feet. It was extremely light, the flowering plants consisting of Liliums, Hydrangea paniculata grandiflora, very fine; and Begonia parviflora. These were dotted rather too regularly amongst Ferns and Palms. Eulalia japonica variegata and E. zebrina were employed effectively, and rustic stands tastefully furnished imparted diversity, but the two best were placed too far back. Some groups of the newer Dracænas and Adiantum Bausei, and a fringe of Isolepis dotted with Caladium argyrites, completed the arrangement; that was deficient in brightness, especially as the day was dull. Mr. Jinks, gardener to J. E. Wilson, Esq., Edgbaston, was an excellent second with valuable and well-grown plants, but arranged with too much regularity from front to back; indeed, it is not easy to arrange specimen plants effectively in a group. Messrs. Pope & Sons were third, Kalosanthes being very fine. Three large groups were arranged round the sides of a large tent, the centre of which was occupied with such a display of glass from the executors of the late Mr. Joseph Webb, Coalbourn Hill Glassworks, as is seldom seen at a flower show. The designs for various table ornaments were most diversified and artistic, and the collection was a valuable and appropriate contribution, which attracted much attention. Similarly attractive in this tent were the unbreakable enamelled iron flower pot covers and saucers exhibited by Mr. Wilton, London Road, Liverpool. These are extremely light and very attractive, being hand-painted. Flowers of various kinds are shown in their colours, and the effect is very artistic. These stands attracted almost as much attention as the Roses.

Bouquets.—A silver cup was offered for one bride's and two bridesmaids' bouquets, and was won by Mr. Spinks with medium-sized examples most tastefully arranged, but rather too much clouded with Ferns. Messrs. Pope & Son, Birmingham, were second with larger bouquets, but rather too conical and closely packed; Messrs. Jones and Son, Shrewsbury, being third with large and elaborate arrangements, but scarcely any Fern fronds to relieve the flowers. Still all were far above the average order of merit, which makes Mr. Spinks' honour the greater.

Mr. Verregans exhibited a basket of remarkably fine Tuberoses, associated with Bougainvillea glabra and edged with Isolepis—a most beautiful arrangement; and Messrs. Wm. Paul & Son, Prince, and Mattock sent large collections of and highly attractive stands of Roses not for competition.

The Show was admirably managed, and Mr. Williams, by his great and successful exertions, won, as he deserved, the high approval of all.

CULTIVATION OF THE AURICULA.

THE cultivation of the Auricula may be said to commence with the repotting of the plants. There are various opinions as to which is the best time for this work. The old growers recommend that it should be done in August, I prefer the first or second week in May; the plants have then a better chance of becoming established and the pots well filled with roots by the time the plants go to rest in autumn. The compost should consist of sound turfy loam two parts, old hotbed manure one part, a little charcoal the size of split peas, and sufficient coarse sand to keep the soil porous. If the loam is of a rather strong nature a small portion of leaf soil may be added with advantage, the whole to be mixed together during the previous autumn and be frequently turned and sweetened, but it should not be sifted.

The pots should be clean and proportioned to the size of the plants. For strong growers a 4½-inch pot is quite large enough, and for such varieties as George Lightbody and Lancashire Hero a smaller one will suffice. It is a great mistake to overpot. Place sufficient drainage in the pot, and protect it with

some of the roughest portion of the compost to keep the soil from being washed down amongst the crocks, and over this a little finer soil. Shake all the old soil from the roots and cut the tap-root well back, leaving only a few new fibres near the neck of the plant. Dust the cut part with pounded charcoal or quicklime to stop bleeding, spread the roots evenly over the soil, and fill up to the collar of the plant, pressing the soil rather firmly.

As the plants are potted they should be placed in frames under a north wall, and be kept close for a week or so until they have taken to the new soil. Give no water until the third or fourth day, to allow time for any roots that may have been bruised to heal. If water is given as soon as the plants are potted it washes the soil to a close compact mass—a condition in which the *Auricula* does not delight. When they have become established admit plenty of air; in fact the lights should be removed in the daytime except during rain.

The only attention they require during the summer months is careful watering, keeping down green fly, and the removal of such leaves as are quite dead or have turned of a slimy nature.

In November the plants should be taken to their winter quarters, where they will remain until the bloom is over. If in frames these should have an eastern or southern aspect; but if a small-span-roofed house can be devoted to them they will be more enjoyable and can be attended to in all weathers. Give abundance of air all through the winter months, closing only in hard frost. As the year draws to a close apply water very sparingly, but on no account let the soil become dust dry, or the fine roots will perish. By the end of February growth will have commenced if the weather is open, and a little more water should be given. It will now be necessary to provide protection of some description for the house or frames in case of hard frost. For this purpose I employ thick sacking placed double on the roof, with rollers to wind it up the same as for shading during summer, for it must be borne in mind that if the truss is frozen the bloom will be crumpled and imperfect.

In March a top-dressing of rich compost should be given; this should consist of one-half loam and half old sheep or cow dung. Gently stir the surface and remove the soil, adding the fresh compost. As growth advances the buds should be thinned, so that an even head of from five to eleven pips may be secured according to the size of the plant. As the pips commence expanding a light should be placed on the lights during bright sunshine, or the bloom will be speedily destroyed.

PROPAGATION.—The *Auricula* is propagated by seeds and offsets: by the former to obtain new varieties, and by the latter to perpetuate existing fine varieties. To obtain seed the flowers should be artificially fertilised. To do this take a small camel-hair pencil and collect the pollen from the small anthers that grow round the tube of the flower, and apply it to the pistil of the one it is desired to take seed from. In crossing it is best to keep the classes separated—i.e., green edges should be crossed with greens, greys with greys, whites with white edges, &c.

By the end of July the seed will be ripe, and should be sown at once in 5-inch pots upon the same kind of compost as the plants are grown in. Fill the pots to an inch of the top, and press the surface firm, and scatter the seed evenly over the soil, but do not cover it with additional soil. Place a piece of glass on the top of the pot to prevent evaporation, and let the pots stand in saucers of water, which should be filled at intervals as the surface shows signs of becoming dry. The young seedlings delight in a close moist atmosphere in their early stages. I have no doubt many of the failures we hear of with *Auricula* seed is caused by burying the seed, or the surface of the soil being dry and wet alternately.

In about three weeks some of the seed will germinate, but a portion will lay dormant until the following spring, so the seed pots should not be hastily put aside. When the young plants have made three pairs of leaves prick them out in other pots; and if they cannot receive daily attention it will be best to cover them with a piece of glass the same as recommended for the seed pots, and as the plants become established give air by tilting the glass on one side.

Offsets are the young growths formed in the axils of the leaves, and suckers are produced upon the tap-root. These when large enough should be taken off and potted singly in small pots, or several may be placed round the edge of a larger one. Afterwards pot singly in small pots, and treat as recommended for the old plants.—B. SIMONITE.—(*Read before the Paxton Society at Wakefield.*)

GRASSHOPPERS IN TURKEY.—Similar devastations to those which we reported from the Caucasus some time ago are now caused in Turkey by grasshoppers. The Turkish Government is compelled to employ extraordinary measures to overcome the

plague. A particularly voracious species has appeared in the Bodirum district (Smyrna), and the whole population is employed to combat the insects. At Angora all business was suspended for three days by order of the Governor-General, and all the inhabitants were ordered to march out into the fields to destroy the grasshoppers. Every inhabitant was compelled to deliver 20 oka (about $\frac{1}{2}$ cwt.) of dead grasshoppers to the officials. The swarms are said to emanate principally from Persia.—(*Nature.*)

DAYS' EARLY SUNRISE PEA.

"CLERICUS," on page 31, desires the opinion of growers as to the merits of this Pea. I sowed it alongside and on the same day with William I. and Dickson's First and Best. It was ready to gather about two or three days after First and Best, and about the same time as William I. It is from 1 to $1\frac{1}{2}$ foot dwarfer than these varieties, the pods are closer to the ground, and it is wonderfully prolific. The woodcuts of it published show eight peas in a pod. I find few pods with more than six peas, but as they are of large size and the pods produced in great abundance, mostly in pairs, the yield is heavy. It is good in quality, but not equal to the later wrinkled Marrows, such as Champion of England and similar sorts; still I think its merits are such that it will become a standard early kind.—J. E.

A CORRESPONDENT on page 31 of the *Journal of Horticulture* makes some inquiries about this Pea. I may say that I tried it and another new variety, American Wonder, with Little Gem and Advancer. Sunrise was the first in flower, but it is slow in forming pods, and was not ready for use until three or four days after the other sorts. It is a white wrinkled Pea, and grows about 2 feet high, but the pods are small and not well filled, and I certainly do not consider it equal to Advancer and should not recommend it. American Wonder is a very good dwarf early Pea. It grows about 9 inches high and is very prolific.—EXPERIMENT.

IN reply to the inquiry made by "CLERICUS" upon the above, I hope the following account will be of some use to him and others. Having grown it this season, I find it has a very good habit, being short-jointed and strong and a good cropper. The pods are well filled, having nine and ten peas in each, and the flavour is all that can be desired. But I find it is not so early as Dickson's First and Best. The two sorts were sown on the same day, the 19th of February, and Dickson's was ready fully ten days before Day's Sunrise.—JOURNEYMAN.

ADVERSE circumstances prevented the sowing of this Pea until April 6th, William I. and Alpha being sown at the same time. The first pods of William I. were gathered July 5th; Early Sunrise and Alpha, July 15th. Early Sunrise commenced to form pods at the fourth joint, or at most the fifth, 8 or 9 inches from the ground, bearing its pods mostly in pairs, from thirteen to fifteen joints on a length of haulm of 3 feet 6 inches, the average number of peas in a pod being five, and of pods per haulm twenty-one; peas per plant 105. William I. had twelve pods from seven joints, commencing to form pods at 2 feet 4 inches from the ground, height of haulm 4 feet 3 inches; the number of peas per pod six, and those per plant seventy-two. Alpha commenced to form pods at the seventh joint, 2 feet 4 inches from the soil, producing them mostly singly from fifteen joints, eighteen in number on a haulm 7 feet in length; the number of peas six, or 108 per plant. The best examples of each were taken for comparison. William I. filled well, Alpha good in that respect, but Early Sunrise filled very indifferently, frequently not more than half its possible number—seven or eight, some pods not having more than four peas. The peas are much larger than either William I. or Alpha, and the quality is excellent. The plant is very robust, the crop lasting some time.—G. ABBEY.

It may interest your readers if I supplement the observations of your several correspondents in your last issue by giving you my experience of the above Pea. My gardener sowed one pint of seed very sparsely in ordinarily prepared ground under a south wall on the 16th March in seven rows (each 20 feet long) in a common drill 2 inches deep, and the crop is the largest I have ever seen—the haulms 5 feet high, and loaded with pods of full size from top to bottom. I cannot say when they came into bloom, but we commenced picking about the 20th June, and have continued almost daily ever since, there being still plenty more to gather, besides leaving sufficient for seed. In addition to this, which is equally important, the quality and flavour have been

excellent all through, superior to William I. and other early sorts, and very little inferior to Yorkshire Hero, Advancer, and others that follow later.—C. H. P., Cardiff.

NYCTERINIA SELAGINOIDES.

ONE of the prettiest dwarf annuals suitable for edging large beds is that represented in the woodcut (fig. 15). The plant is by no means a novelty, but, like so many old favourites that have been partially displaced by more modern rivals, it is seldom seen in gardens except where simple flowers are treasured. Amidst the numerous floral attractions this season in the Royal Horticultural Society's Gardens, Chiswick, some rows of this *Nycteria* have been especially noteworthy, and many visitors have admired the compactness of its habit and the abundant white and rose flowers. These at a glance resemble some of the dwarf *Silenes* or *Saponarias*, and in appearance there is little to suggest the relation of the plant to the *Serophularias*, in which family it is included. It



Fig. 15.—*Nycteria selaginoides*.

succeeds in almost any soil that is not too heavy or wet, and, as above stated, it is particularly well adapted for an edging to a bed of miscellaneous plants.

PLANT-GROWING FOR MARKET IN SCOTLAND.

MOST readers of the *Journal of Horticulture* must be familiar from its pages with all the great market plant-growing places about London and in the neighbourhood of all large towns in England, but it is very rarely indeed that we see any remarks on plant-growing for market in Scotland. Yet a great trade in decorative plants is being established there, as was proved to us some time ago while calling on Messrs. William Thomson & Sons of the Tweed Vineyard, Galashiels. Since we last saw this establishment some six years ago the glass houses have been much extended and their occupants greatly changed. Then Pine-Apple plants and Vines in pots were nearly the only plants grown, but now they have given place to small plants which are annually grown by thousands, and the demand for them about Edinburgh, Glasgow, and elsewhere is rapidly increasing, which is not surprising, as we cannot remember seeing plants for market that would surpass those grown at Clovenfords for general quality.

To make these notes more readily understood it may probably be best to take the houses in rotation, and starting from the lower end we first entered an Orchid house in two divisions, altogether about 140 feet long and 18 feet wide. The plants are grown throughout the year in a much lower temperature than is gene-

rally employed, and that the treatment agrees with them is easily seen from the excellent health of the grand specimens of *Vandas*, *Laelias*, *Cattleyas*, and *Cypripediums*. The next is a propagating house about 150 feet long by 16 feet wide, devoted to young Ferns, with stove and greenhouse plants, and we noticed that they only comprised large numbers of a few of the most useful and effective classes of plants, such as *Adiantum cuneatum*, *Cocos Weddelliana*, one or two varieties of *Pteris*, *Dracenas*, *Crotons*, &c., besides large quantities of *Bouvardias*, *Begonias*, *Fuchsias*, and *Eucharises*. The adjoining house is planted as a vinery with Muscat Vines; it is 200 feet long by 18 feet wide, and is a lean-to, with a pathway up the back, and a great space for plants beneath the Vines. This is filled in winter with thousands of small plants of *Erica gracilis* and *hyemalis*, and large quantities of *Epacris*. The Vines in this house are not started into growth until well into February. A late vinery 180 feet long by 25 feet wide, planted chiefly with Gros Colman, Lady Downe's, and the Black Alicante, the roots of all being outside, the inside of the house having a floor of concrete, is occupied with thousands of Hyacinths, Lily of the Valley, and other bulbs in the spring. Along the back wall there is a bed 5 feet in width, and in this Camellias are planted out for supplying cut blooms. Adjoining is a late Muscat house 200 feet long by 16 feet in width; underneath the Vines were fine Roses in pots, grown chiefly to supply cut flowers.

In front of the Muscat house is a structure 200 feet long by 14 feet in width, and in front of this is a span-roofed house 140 feet long and 18 feet wide. The first of the two was filled with fine Primulas, Cinerarias, and Pelargoniums; 100 feet of the last contained Pelargoniums and many hundreds of Azaleas in 5-inch pots. The lower 40 feet of this house is divided from the remainder, and is employed for forcing. In another range we come to a house 200 feet long, which contained many hundreds of the hardier Palms. Several large frames were full of hardy Ferns, Hydrangeas, Saxifrages, and a variety of other plants. Close to them is a span-roofed intermediate house about 95 feet long by 15 feet in width; Ferns, *Odontoglossums*, &c., were most attractive there.

From the frequency we have had occasion to mention "vinery" in the above notes some of your readers who may have seen Clovenfords will have been led to suppose that some of the large vineries there have been turned into plant houses, but this is not so. As yet we have not come to the "big vineries" or principal Grape-growing quarters. These consist of five span-roofed houses, four of which are each 200 feet long by 24 feet in width, and the fifth is a little shorter but of the same width. Four of these form a block together, one being a corridor, the other three running out from it. The corridor is planted with Black Hamburgs and Duke of Buccleuch. The latter still bears well and gives great satisfaction. It is not treated so much on the close-spur system as formerly, but a good quantity of young wood is left annually, as it is found to bear best in this way. The first of the other three houses is planted entirely with Lady Downe's; the thousands of bunches from 2 lbs. to 4 lbs. in weight are not cut until February. The next house is planted with Gros Colman and Black Alicante, and an adjoining house with Gros Colman and Gros Guillaume. Trials of the different forms of this last-named Grape have been going on, and all have proved to be the same, so that Seaclyffe Black and the Charleville variety are simply Gros Guillaume. The other large house stands some distance from these on a more elevated site. This is planted with Lady Downe's and Alicantes. Close to the last is a vinery 70 feet long by 18 feet wide. This is planted with Lady Downe's.

The improved cueiform and terminal saddle boilers are almost exclusively used for heating, and the fuel consumed is chiefly coke. As was stated at the commencement of these remarks, most of the plants find a market in Edinburgh and Glasgow, but most of the Grapes are dispatched direct to Covent Garden.

Many details which would no doubt interest some of your readers have unavoidably been omitted from these notes, but we cannot do better than advise all who are ever within a hundred miles of Clovenfords to go and see it. To all interested it would amply repay a much longer distance than this. It is situated amongst the hills, where pure air, clear water, and fine loam abound, but is only an hour's ride from Edinburgh, and the station being so near is a great consideration; besides, for many miles around the district is full of historic interest. Only ten minutes' walk from Clovenfords there still stands in an excellent state of preservation the house of Ashestiel, in which Sir Walter Scott composed much of his poem "Marmion," and many of the scenes so vividly depicted there remain unchanged.—VISITOR.

ENGLISH IRISES FROM SEED.—We have at present a beautiful bed of these in flower from seed sown about four years ago. Appa-

rently they come very true to their variety, as many of them are exactly similar in colour to each other, also to named sorts growing in the borders. When seed is required flowers which are fading should not be cut off, but the capsule left to produce seed, which when ripened should be gathered and sown at once in drills 6 inches apart. Several of our plants flowered the second year after sowing, they were then lifted and transplanted 6 inches apart in beds where they were required to flower. Autumn is by far the best time to transplant. If at all practicable masses are the best, as the colours harmonise perfectly though mixed.—R. P. B.

MR. SHIRLEY HIBBERD'S LECTURE ON THE CARNATION.

(Continued from page 65.)

AN exhibition does not reveal to us all the glories of the Carnation family, but of certain classes of flowers that have been trained, as we may say, to certain standards of quality. I have heard to-day a question often asked at a Carnation show—"Why are there no Pinks present?" There are two reasons for the non-admission of Pinks to this Show; one is that they are not Carnations, and the other is that they do not now exist as flowers, for they attain perfection in the month of June and cannot be presented at a July show. Although, from the botanist's point of view, the Pink and Carnation are closely related, they are in the view of the florist separated by a wide gulf, for it is impossible to cross them, and consequently we cannot raise a Carnation from a Pink, or a Pink from a Carnation, or secure a race of flowers midway between them. The Carnation as a show flower is not allowed to sport into as many varieties as it pleases. It is, however, capable of producing almost every colour except true blue. The shades of red appear to be proper to it, a point in which it agrees with the wild Pink. It is from this circumstance it takes its name of Carnation, the exact meaning of which is flesh-coloured. You will remember that in the remarkable description of the death of Falstaff by Dame Quickly, in Shakespeare's *Henry V.*, the touching pathos is brightened by a stroke of wit, the effect of which is to remind us that the brave Sir John was a notable coward. The Dame says, "A' could never abide carnation; 'twas a colour he never liked;" real fighting and flesh wounds being not to the liking of Falstaff and his cutpurse followers. It is singular that this name, which equally with Gilloflower is derived from the Latin, apparently furnishes the basis of another of the old names of the flower; for the Carnation is the "Coronation," the chaplet flower, which Spenser describes as "worn of paramours," its gay colour and spicy perfume doubtless rendering it a fine antidote to the proper melancholy of a lovesick swain.

All the colours we now find in the Carnation were known to the old florists, and John Parkinson descants on the beauties of the yellow Carnation in such a manner as to suggest that the yellow ground Pictée was not unknown to him, although he gives no definite hint of its existence. The true foundations in floriculture laid by him were soon freely built upon, for in the year 1676 John Rea had 360 sorts of Carnations; and from this time the popularity of the flower appears never to have waned in any serious degree.

The modern history of the flower dates from the 25th July, 1850, when the first proper exhibition in the south of England took place in the Royal Nurseries at Slough, and the National Carnation and Pictée Society was formally founded. It is with unspeakable pleasure I find in the records that in the first start of this Society the names of Turner and Dodwell appear as the leading prizetakers, both at the show just referred to and the second show that was held at Derby on the 7th of August in the same year. Thus the year 1850 was a great year in the history of floriculture; and it seems scarcely possible, although it is perfectly true, that the two masters of the Carnation in that day are masters now, apparently younger and more enthusiastic, but with an immensity of acquired experience to sustain their zeal and constancy. Their presence here to-day may be regarded as a delightful commentary on the declaration of Wordsworth, that "Nature never did betray the heart that loved her," and we may regard each of these as favoured by the Fairy Queen, who "crowns him with flowers and makes him all her joy."

It is an interesting and somewhat remarkable fact that the Carnation and its several relations, as Pinks, Pictées, and the like, endure with patience the smoke and dust of great towns. Mr. E. S. Dodwell has put the capabilities of the flower in this respect to the severest test imaginable, for he brings forth from year to year the most perfect blooms, taking a fair share of the prizes, as in the memorable year 1850; and his garden is favoured by a railway company with a perennial shower of blacks night and day the whole year round. Indeed, the *Dianthus* family

appear to have somewhat of the same sociable temper as the singing birds; they appear to love the habitations of man, and hence the prudent botanist who wants a specimen of the true typical *Dianthus caryophyllus* will begin to hunt for it on castle walls, ruins, or on the roofs of old sheds and cottages. I remember making a grand find in a hunt of this sort. Being on the rampage with a friend, we made discovery of a cottage roof all glorious with tufts of wild Pink, Houseleek, Stonecrop, Rock Rose, Ragged Robin, and Stithwort, all embedded in cushions of golden moss, and wreathed about with garlands of Roses. We resolved to derive from this floral roof a grand intellectual and æsthetic treat, and were preparing to make sketches and draw up a careful catalogue of the plants. The owner of the cottage came out, and smiled approvingly when we told him we had found an Eldorado on his roof, and intended to make a picture that posterity would rave about, and that would turn the heads of all botanists, florists, painters, and dodoists; so that probably the world would begin to revolve in a new way, with his huge chimney for its future axis. But it came on to rain, and like a pair of cowards we fled, promising to be on the spot next morning to accomplish the task that should renew humanity. And we were there next morning; but the scene was changed. The worthy man was on the roof, scraping away with a hoe. He had cleared off all the vegetation to display the original red tiles; and he said, with a pride that to us was deadly, "I thought it a pity that you should paint my cottage with all that rubbish on it; for them tiles I put on myself, for that's my trade, and I am proud of it; for I'm a tiler, every inch of me." What we lost individually is as nothing to what the world lost through this blundering vandalism.

The mention of vandalism reminds me that I just now spoke of æsthetic delights. Fifty years ago the cultivators of taste in Germany were called æsthetes, because they sought and encouraged the cultivation of beauty. There are now amongst us, even in the bright world of flowers, those who profess to be æsthetes, and who coolly propose that we should undo and utterly waste the work of centuries of floriculture, and allow Nature to assert herself according to the original pattern of things as on the third day of creation. Yes; they dare to doom our double flowers to an ignominious oblivion, and they fondly hope we shall destroy our proper garden flowers, and plant in their place those that Nature cultivates so nicely in the woodlands and on the mountains. They really aim at destroying all our outdoor pleasures, because the wild flowers are far more delightful when we have to search for them in their own breezy haunts than they are when we bring them into the garden. Thus, if we lose our highly cultivated flowers, and lose also the peculiar and ever fresh delight of searching for the wildlings in their native haunts, there must be an end of gardening altogether. To put our beautiful garden flowers under a ban is the work of a Caliban, whose great delight should be with his long nails to dig pig nuts. Let him sing in his empty dream of delirious joy, "Ban, ban, ban, Caliban; has a new master; get a new man." Caliban and his dodoistic friends will have their day and cease to be, and the good old garden flowers will continue to delight mankind and justify the labours of the florists.

It is interesting to note that two great authorities give the florists full credit for their making of the flower that has thus far occupied our attention to-day. Turner, writing about 1550, says: "The garden gelouers are made so pleasaunt and swete with the labours and witt of man, and not by Nature." And Withering, in the eighteenth century, wrote: "The art of floriculture, sometimes despised with a reprehensible degree of fastidiousness, has in this instance transformed a plant, comparatively obscure, into one of the most delightful charms which the lap of Flora contains."

CLERODENDRON BALFOURIANUM.

HAVING grown the above as small bushy plants in 5 and 6-inch pots for some years past, I can safely recommend it as being the most effective and useful plant for indoor furnishing that I am acquainted with. This is especially the case in spring and early summer, its natural time of flowering. Although I have found it to be very accommodating, I have had it in bloom continuously for six months simply by keeping the plants back in dry positions with a temperature of about 50°. The effect produced by a number of these in a mixed collection of plants is very telling and brilliant, and I venture to predict that when its merits in this small form become better known it will be grown very extensively.

Its culture is easy, the chief point requiring attention being persistent stopping while growing, even from the cutting stage. A shallow pit I have found to be the best place to grow them in, where they can have plenty of light and be near the glass. Good

loam, peat, and Mushroom dung in equal proportions, with a liberal sprinkling of sand, is the best compost for them. When the plants are considered large enough they will remain healthy in the same sized pots for years if assisted, at the commencement of growth and when the bloom is forming and expanding, with liberal supplies of Clay's fertiliser. I have not grown it in the standard form, but hope to do so next season.—D. THOMAS, *Drayton Manor Gardens*.



WE have received the first part of the "ORCHID ALBUM," the projected publication of which was recently referred to in these columns. The style and general execution of the part now before us fully confirms the opinion we expressed—i.e., that it is likely to be a really useful and handsome work. Coloured plates of *Oncidium concolor*, *Lælia Schröderii*, *Cattleya Mendelii grandiflora*, and *Epidendrum vitellinum majus* are admirable, depicting the chief characters of the plants, though in two instances the exact tints have scarcely been obtained. This is not surprising, for Orchids of all flowering plants are the most difficult to represent faithfully in this respect. As regards the delineation of form all the plates are very satisfactory, and the slight difference in the shade mentioned is practically of no importance. Full botanical descriptions accompany each plate, with references to synonyms, authorities, and other works where the plants have been figured or described. In addition, much general information is given concerning their history and culture, rendering the book at once scientific and popular.

— THE following extract from the above-mentioned work upon the culture of *ONCIDIUM CONCOLOR* will indicate the scope of the instruction given, and may also prove useful to some of our readers:—" *Oncidium concolor* succeeds best in a compost of peat with a little sphagnum moss added, and with plenty of good drainage. We have grown it most successfully in small pans, but it can be cultivated either in a basket or on a block. It would succeed equally well in a pot, but the drooping character of the flower spikes renders it a most fitting subject for growing in either of the above-named receptacles, and for suspension from the roof. As to temperature, we find it succeeds best in the *Odontoglossum* house during the summer months. After it has flowered, and while it is making its growth, a copious supply of water should be given to it, always keeping the soil moist until the growth of the bulbs is completed. When it has finished its growth it should be removed to the *Cattleya* house, where it should be kept moderately dry until it produces its spikes, about March or April."

— IN the Cape House at Kew the very distinct Bellflower, *CAMPANULA VIDALII*, is now very attractive, a number of plants in pots being arranged on the side stages. It is a semi-shrubby or woody species from the Azores, where it was found growing upon a rock on the east coast of Flores by Captain Vidal, after whom it is named. It has narrow somewhat spatulate leaves with serrated margins, the flowers being white and glossy, bell-shaped, but curiously contracted in the middle. They are produced very freely, and when the plants are in such condition as those at Kew they are important and valuable additions to any cool house.

— IN the new Victoria house of the same gardens a pretty ally of the *Mussaendas*, *HOWARDIA CARACASENSIS*, is also flowering. It is of shrubby habit, having elliptical light green leaves and axillary or terminal rosy-coloured tubular flowers about

1½ inch long, each attended by an ovate bright rosy appendage, which is really one lobe of the calyx greatly enlarged. A number of flowers being produced together imparts a pleasing appearance to the plant, and it would form a suitable companion for *Mussaenda frondosa*, the bright rose colour of the one affording a striking contrast with the white and yellow of the other.

— MR. LAXTON of Bedford sends the following account of AN ECONOMIC MODE OF GROWING POTATOES:—"I have recently seen a plan adopted by a cottager of growing together in alternate rows early varieties of Potatoes with the late strong-growing sorts, such as Early Rose or Myatt's Prolific Ashleaf, in combination with Magnum Bonum or Champion. The Potatoes are planted in rows 2 feet apart, the varieties alternating; the early sorts can then be dug some weeks before the later varieties are fit, and these, after the earlies are harvested, have an additional earthing-up and find plenty of time and room to develop a full crop; the intervening space from which the early Potatoes have been removed being utilised for growing Brussels Sprouts, Broccoli, Turnips, or other fall crop. The plan is the most practical and economical I have yet seen for obtaining the utmost quantity from the least ground, and securing a successional green crop in the same season. The matter seems worth the attention of field and market growers, and I intend trying it next year in the Experimental Grounds at Girtford. In Bedfordshire with light crops, Early Rose, Shaw's, and other early varieties of fair quality have this season scarcely realised an average gross return of more than £4 per ton, and with such prices and seasons it will be impossible to grow the Potato remuneratively in this country and to keep pace with foreign competition, unless every available means be resorted to for obtaining increased quantity of produce as well as improved quality, the varieties being also especially selected as suitable to English tastes—a desideratum which the imported sorts do not at present generally supply."

— AT Chiswick now there is a brilliant display of Tuberous Begonias, many being seedlings of great promise and of various shades. One that especially deserves notice is *BEGONIA QUEENIE*, which has large rose-tinted flowers that are borne very freely, and the plant being of vigorous yet fairly compact habit renders it additionally pleasing. The colour is very bright and clear indeed, when as we recently saw it the variety can scarcely be surpassed. The Floral Committee of the Royal Horticultural Society, when recently visiting the gardens, signified their opinion of the merit of this variety by awarding a first-class certificate for it. Several orange, pink, and scarlet forms also possess considerable merit.

— MR. E. WILSON, Hardwick Hall Gardens, sends the following upon *PRIDE OF THE MARKET* PEA—"Anyone in want of a really good dwarf Pea should grow this. I had a packet of seed this spring, which was sown April 23rd, and the plants are now (July 23rd) bearing an extremely fine crop of pods. The pods are like *Ne Plus Ultra* but longer, with nine peas in a pod, of a deep green colour, and when cooked of first-class flavour; it is equal to any other dwarf Pea that has come under my notice."

— THREE very pretty small-flowered Begonias are *B. RICHARDSIANA*, *B. NATALENSIS*, and *B. SCHMIDTII*, all of which are flowering at the present time in some large collections. The two first-named have small white flowers produced in great abundance, *B. Richardsiana* having also very neatly cut leaves. Both are of slender habit, but make handsome little specimens when well grown. *B. Schmidtii* is especially remarkable for the compactness of its habit and the slight metallic lustre the leaves possess. Young plants in small pots are very useful, and they continue blooming for a considerable time.

— A HANDSOME specimen of the remarkable Orchid *VANDA*

(*RENANTHERA*) *LOWII*, which stands about 6 feet high, is now in flower at the Victoria and Paradise Nurseries, Upper Holloway. It has six long flower spikes, one at the present time exceeding 7 feet in length, and has about 194 flowers and buds. This plant will be in flower for several weeks, and should be seen by every Orchid-grower.

— A CORRESPONDENT of the American Gardener's Monthly has the following note upon *ÆSCULUS CALIFORNICA*:—"No one travelling along the foothills of our mountain ranges in spring will fail to remark the bright green colour of our common California Buckeye, nor to note the light rose tint of its blossoms. One of the first to bud and leaf, it is also one of the first to catch the eye at the opening of spring. It is somewhat remarkable that the *Æ. californica* is not more extensively cultivated as an ornamental tree (or perhaps I should say shrub) in our landscape collections. True it supports its bright green colour but a short time, but its beauty for this short period, when most other deciduous trees are so bare, will surely compensate one for the labour expended on its planting and culture. It is propagated from the seed, and flourishes best in a gravelly soil, such as is found in the foothills of the Sierra Nevada and Coast Range mountains. The nut, though considered poisonous in its crude form to both man and beast, is largely used by the Californian diggers as food."

— THE same periodical gives these remarks upon *HYBRIDISING PITCHER PLANTS*:—"The finest set of hybrid *Nepenthes* I ever saw was at Such's Nurseries, South Amboy, N.J., and some of these same hybrids are named, figured, described, and sent out by English nurserymen; but in no case have I seen the credit given to the raiser—namely, Mr. James Taplin, of Maywood, N.J., and who was for years manager of Mr. Such's place. Certainly Mr. Taplin is an Englishman, and one of the best practical gardeners who ever came to America, but the work he does in America we will claim as American."

— WE are desired to announce that the fifth annual Exhibition of the St. Giles's CAMBERWELL AMATEUR FLORAL SOCIETY will be held at Camden House, Peckham Road, on the 8th, 9th, and 10th of August.

WHAT PLANTS USE.

(Continued from page 30.)

WATER.—Water is always present in the atmosphere. Air at a temperature of 32° is saturated with a 160th part of its bulk of water. Saturation is the point at which, were more water added, it could not be held in solution, but would appear as mist, fog, or dew. The same phenomenon occurs if the temperature be suddenly lowered; it is then incapable of holding it in solution and the water is precipitated. It is found that the capacity of the air for water is doubled by every rise in the temperature of 27°—that is to say that air, which at 32° is saturated with a 160th part of water, if raised to 59°, instead of being moist it will be dry and capable of containing an eightieth of its own weight. Again, if air at 59° containing an eightieth part of water be raised to 86°, it will be very dry and capable of containing a fortieth part.

Moisture in the atmosphere is very necessary to plant life, and when it is absent vegetation is impossible. General readers are all acquainted with the deadly nature of the simoom, and its destructive nature is in great part owing to the fact that it is singularly deficient in moisture. With a capacity for a thirtieth part of its own weight of water, it frequently contains no more than a fifteenth of that amount.

When air is too dry it absorbs the moisture from plants with greater rapidity than it can be replaced by the roots and flaccidity ensues, than which no more weakening influence can be brought to bear on plants. Out of doors well-rooted plants, which grow in soil fairly moist, seldom fail by over-evaporation. The fact is, even in dry weather the air seldom contains less than two-thirds of the maximum amount which it is capable of containing, and it is often saturated. Unless the air is completely saturated evaporation always takes place from plants; for this reason it is not a good plan to put out even well-rooted plants in dry weather. The time to do it is when the air is near saturation point, for

then the plants will strike root readily. Cuttings make roots quicker when covered by bellglasses or close case for the same reason; indeed, many kinds of plants fail to root unless the tops are continually surrounded by an atmosphere containing the maximum amount of water of which it is capable of holding. Such tender plants as Melons and Cucumber plants and forced Vines are in winter, frequently suffer in early spring from the extreme dryness of the air. It happens very frequently that, with the air below freezing point in temperature, a clear sun shines and raises up the temperature of such houses considerably. Shading we all instinctively avoid if we can, for we all know it is an evil which results in tender growths, which cannot bear hot sun or dry air, nor yet produce the best results in the production of fruit or flowers. Ventilating is dangerous because of its admitting air destructive in its coldness and aridity. Scorching we cannot risk, and we are often in doubt what should be done. Often we forget what is wanted to prevent the excessive evaporation which causes flaccidity. Air with often less than a three-hundredth part of water, when admitted, even in small quantities, to a structure where the temperature is between 80° and 90°, soon approaches in its character the simoom. It is not enough to add heat; it is not even enough to add the necessary carbon—exhaustion, swift and sure, will follow unless a due amount of water be also added. No structure is fit for forcing purposes unless proper provision is made for the admission of air warmed and moistened.

Different subjects require different degrees of moisture in the air. The saturation which is necessary for the Pitcher-plants and Orchids from the steamy shady groves of the tropics would prove ruinous if applied to the Vine, which thrives in the clear sunshine and arid air of inland Spain and Italy. Generally speaking the nearer saturation point the atmosphere of an Orchid or *Nepenthes* house is, at least when the plants are making their growth, the better. If the air of a vinery contain about two-thirds of the water it is capable of holding it is too moist—wartlike excrescences will follow, the elaboration of sap be sluggish, and the general results unsatisfactory. When the leaves of Vines are young and tender and the sun is powerful a little more ought to be allowed, but in the case of Vines after the leaves have gained substance much less will suffice—indeed will be preferable, for then with plenty of air, heat, and light, growth in its true sense will go rapidly on. We do not mean that the air should never contain more than that, for we think that nightly dewings are of great benefit.

This leads to a few words on dew. In tropical regions, whence most of our hothouse plants come, and even in the warmer parts of the temperate regions where Vines, and Peaches, and other plants grown under glass at home thrive outside, the days are hot, clear, and dry; the nights cool and moist. We do our best oftentimes to reverse this in our vineries. We "damp down" and "sprinkle" even when days are dull and the temperature low. Moisture in the air is necessary, but too much is hurtful, and often we keep the air moist during daylight to a hurtful extent. Nature teaches us the opposite. By night we, in too many instances, keep up a high and a dry temperature. Nature teaches us the opposite. In our remarks on air, &c., we tried to show how high night temperatures undo the previous day's work. Not only so, but high night temperatures cause exhaustion as well, and even by daylight they fail to go forward as under more natural treatment they would. After a hot day Vines and other plants need rest and refreshment. Why deny them? Under even tropical skies the nights are cool, and plants are bathed copiously by an abundant dew. Under this bathing flagged plants recover their freshness and prepare for another day. This we should imitate.

It is easily done. If after a hot dry day we sprinkle water over a vinery floor and open all the ventilators the Vines will be dripping with dew by morning. The reason is this: The air in the vinery at the close of a hot day is warm and its capacity for water great. When water is sprinkled about the air takes up much of it and retains it. When the cool night air is admitted by the ventilators the air inside is cooled and its capacity for water reduced; it becomes saturated and ready to deposit its water. Moreover, the air cools the Vine leaves more rapidly than the stages, borders, walls, or paths, and therefore the moisture-laden air coming in contact with the cool leaves deposits part of its load and the Vines become covered. Should there be any heat in the pipes this will not occur, however, for then the capacity of the air for water will be maintained, and the moisture will be passed out by the ventilators instead of being deposited on the leaves. Even with closed ventilators the dew will be deposited, always provided the sky is clear and the outside air cool. A damping of the back wall in the case of lean-to vineries will help the deposition of dew greatly, for the wall will retain its heat after the Vines have lost theirs; hence the air will gain

heat and moisture when in contact with the wall, and part with both when in contact with the cooler Vines. But we prefer, for reasons stated elsewhere, to keep open ventilators, in summertime at least.

What is true of the deposition of dew on Vine leaves is also true of almost everything else under glass. In the case of Melons and Cucumbers, however, it is wise to have a higher minimum temperature than for Vines. Anything between 40° and 55° we consider to be high enough during darkness for Vines; anything higher we consider hurtful. With Melons the case is different. Vines will receive no check by being subjected to a temperature of 45°, but Melons will. Moreover, Melons will rest in a higher temperature than Vines: it is, therefore, not necessary to give Melons ventilation at night unless the weather be very mild. A good sprinkling, and when necessary syringing, will load the air with moisture. All that is necessary in order to bathe the Vines with it is to let the temperature rise to 90° before night and fall to 60° by night. Melons otherwise healthy will be greatly benefited by this treatment, especially in hot weather. Some people—indeed many of our very best gardeners—consider 70° a proper night temperature. We are of an opposite opinion. Unless there is need for hurry in order to have the first ready by a given date we think 60° high enough, and all things being equal otherwise, we have found Melon plants so treated stouter, more robust, and to finish off finer fruit. Indeed the air in our pits is down in cold mornings to 55°, and even lower, without ever harming the plants that we could see, but the very reverse. It is not a good plan, though, to allow the bottom heat to fluctuate greatly. In nature the air has a wide range of temperature, but the soil heat is much steadier, and a lesson is thereby read to us which we would do well to learn and practise accordingly.

Perhaps we should in this place say a word on syringing. Syringing to remove insects is a very necessary operation. Insecticides are commonly applied diluted with water by means of the syringe. These are subjects which have been treated on again and again, and it is not our intention to say anything of them under our present heading at least: we merely mention them here that we may not be misunderstood. We repeat that syringing with pure water to remove insects, and also that the employment of the syringe in the distribution of diluted insecticides, are necessary. What we wish to discuss here is the damping or syringing of plants. We do not think the practice good—at least as it is generally done. It is far better to damp them with dew than to do it by means of the syringe. True, in a majority of plant houses plants would never be covered by moisture unless syringed. In that case it is the great heat that is to blame. In numberless cases the moisture which is applied by the syringe to plants in stoves, and even vineries, late in the day or early in the evening is all dried up in the course of an hour or two. When this happens harm is done. Nature at night gives moisture to the plant by the air. Many cultivators reverse this. Instead of supplying the plant with moisture by night from the air, the capacity of the air for water is maintained at a point at which it abstracts water from the plant. This is all wrong, and it is unnatural; indeed, we do not know whether syringing under such circumstances is not an evil. Under natural conditions syringing is quite unnecessary: under unnatural conditions, such as a too high and dry an atmosphere, it seems at first sight as if it could only do good. It certainly tends to bring the air, for a time at least, to saturation point; but it is an evil when the drying influence of hot-water pipes causes its speedy evaporation from the moistened plants.

It often happens during the dull days of winter that there is more moisture inside glass houses, especially those kept at cool greenhouse temperatures, than is good. Damping-off of Primulas and other soft plants, moulding of Grapes, &c., are caused by this state of matters. To prevent dampness free ventilation in bright weather with a little fire heat should be given. In winter there is often little sunshine, and very often the air is very near saturation. Inside the structures, in the absence of either fire heat or sunshine, the air is very similar—only worse, for the constant circulation outside helps matters: inside the occasional waterings aggravate them. The cure is fire heat. Fire heat or sunshine, no matter how little, will raise the temperature inside a few degrees above the outside air, and by that means increase its capacity for water. When this is the case the air will begin to absorb moisture, and if the top ventilators be opened this warmer air will pass out, carrying its load of moisture with it. That which enters from below being colder has not the same capacity, and though apparently containing more than the inside air, actually contains less. On being admitted its capacity is increased, and it in its turn absorbs and carries its quota of water away. This is the case even when the outside air is damp, but it is always best to take as

much advantage of bright weather for doing all necessary watering and for drying up damp. Even in wet weather houses which are kept at a high temperature need damping. All that is wanted to prevent damping off is a little heat to warm the air and a little ventilation to keep it circulating.—SINGLE-HANDED.

(To be continued.)

CUNONIA CAPENSIS.

HORTICULTURAL visitors to the Duke of Northumberland's celebrated Syon House Gardens may invariably rely upon seeing much that will interest them, and if they be favoured with the company of the courteous and able gardener, Mr. Woodbridge, it will be strange if they do not add some items of knowledge to their store. All departments are well managed and satisfactory. In the numerous vineries and fruit houses we see good crops of Grapes, Pines, Melons, Figs, and Peaches. The kitchen garden is clean and well cropped, the plant houses gay with healthy and freely flowering specimens, the flower garden bright and effective, and the park is always beautiful, but especially in the summer, when the stately trees are in the best condition. To refer at length to each of these departments would fill several pages, not perhaps unprofitably to some readers, but for the present a brief note upon a remarkable and handsome tree recently flowering in one of the houses must suffice.

Cunonia capensis is not very frequently seen in gardens now; indeed it was better known twenty or thirty years ago, and though one of the most beautiful flowering trees that can be grown in a conservatory, greenhouse, or similar structure, it appears to be comparatively rare. Probably one reason for this is that the propagation has been found rather difficult, yet the tree is of free growth, and attractive even when not flowering, and would well repay for any attention bestowed upon it. The conservatory at Syon possesses a specimen which is reasonably believed to be unrivalled in this country, and when bearing some dozens of its long close racemes of white flowers the effect produced is really magnificent. I was fortunate enough to call upon Mr. Woodbridge when the tree was in its best condition, and though it did not occupy the most favourable position, being partly hidden by other trees and shrubs in front, it was yet surprisingly beautiful. The specimen is about 15 feet high in a large pot, and bears pinnate glossy green leaves, and racemes in some cases nearly a foot in length. The species is, as its specific name implies, a native of the Cape of Good Hope; it has been in cultivation over sixty years, and the genus constitutes the type of a natural order allied to the Saxifragas. The following extract from Burchell's Travels in Africa may be of interest—"This is a handsome tree, with fine shining green foliage, contrasted by numerous, dense, elongated bunches of small milk-white flowers, and twigs of a red colour, having the habit rather of a tropical than of a Cape plant. Its colonial name is Rood Elze (Red Alder), although the tree has not, in any point of view, the least resemblance to the Alder of Europe; but the waggonmakers say there is some similarity in their wood. I am inclined, however, to believe that the name was given rather in consequence of their growing in similar situations."

The woodcut (fig. 16) faithfully represents a raceme and leaf from the Syon specimen, and the effect of such a tree in full flower can be better imagined than described.—L. CASTLE.

ROYAL HORTICULTURAL SOCIETY.

JULY 26TH.

RARELY are there so many diverse and concurrent attractions in the Society's Kensington garden as was the case last Tuesday, when, in addition to the ordinary meetings of the Fruit, Floral, and Scientific Committees, the arcades and corridors were occupied with a medical and sanitary Exhibition, and the British Bee-keepers' Association's Show. The horticultural portion was somewhat limited it is true, but visitors found plenty both to interest and instruct them in the combination of exhibits.

FRUIT COMMITTEE.—Harry Veitch, Esq., in the chair. The duties of the Committee were not at all arduous on this occasion, for the contributions were comparatively few, yet, though not extensive, they were mostly of good quality. The chief feature was a collection of Tomatoes in pots from Messrs. James Carter & Co., High Holborn, comprising a large number of varieties, all the best in commerce being represented, both large and small-fruited forms. Of the latter the Red Currant was particularly noteworthy from a decorative point of view, as the long racemes of small globular bright red fruits were very attractive. Several varieties with yellow fruits were also shown. Among some new varieties was one named Dedham Favourite, and this was deemed by the Committee worthy of a certificate, which was consequently awarded for it. The fruit is bright

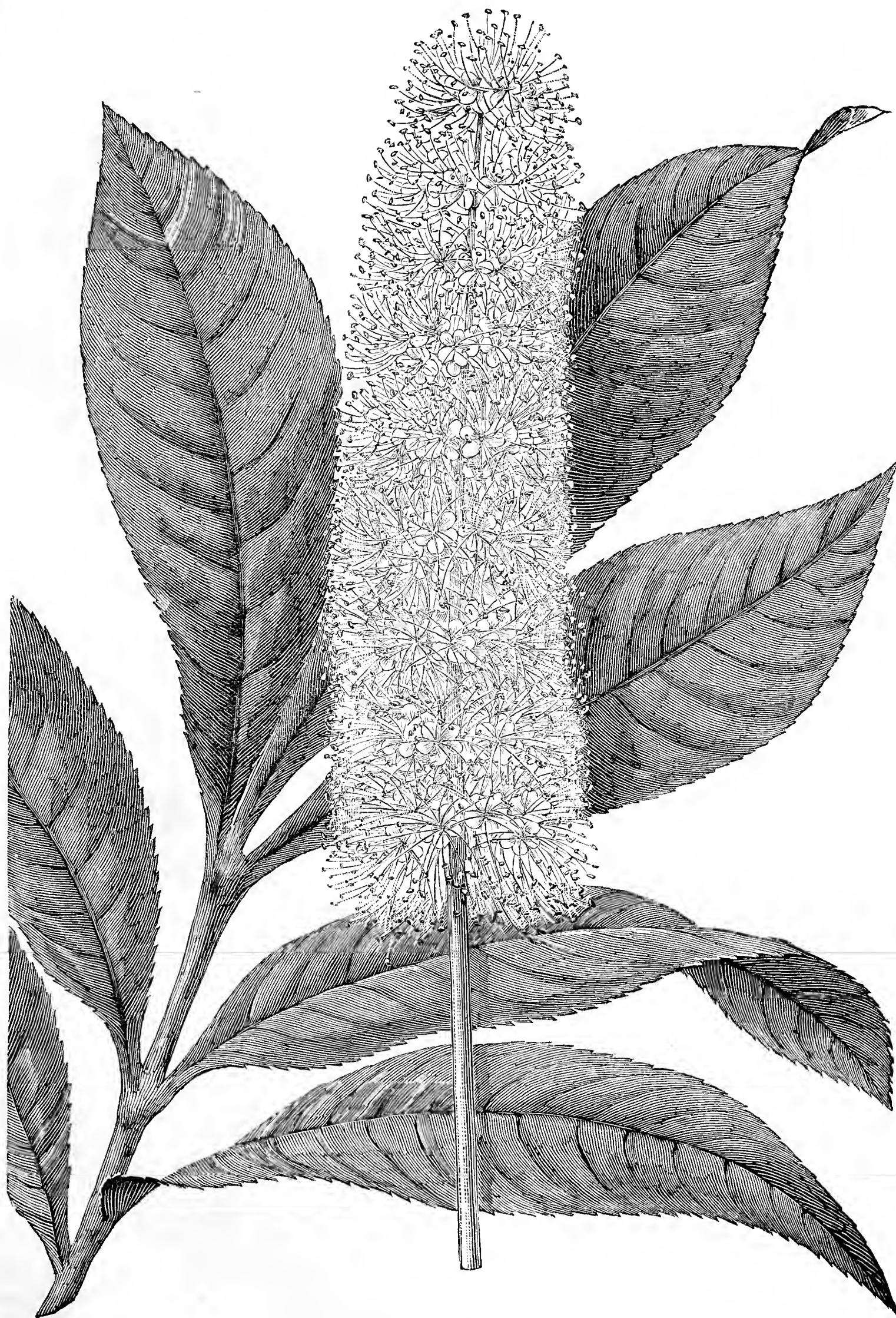


Fig. 16.—CUNONIA CAPENSIS.

red in colour, globular in form, very even without any corrugations, and attains a good size. The plant also appears to be prolific, for a small specimen was bearing over a dozen large and handsome fruits. The collection was deservedly awarded a silver medal.

Another exhibit of some interest was a collection of about forty varieties of Gooseberries from Mr. J. Walker of Thame, Oxon. Numerous very distinct forms were shown both of the yellow and red types, among the latter the small dark-coloured form known as Ironmonger being noteworthy; it is a variety of good flavour, but not equal to Red Champagne. A vote of thanks was accorded for the collection. Mr. Hutchings, Rickmansworth Nursery, sent some examples of a Pea called Challenge the World, which was characterised by the Committee as a good stock of Ne Plus Ultra. Mr. J. Salter, gardener to J. Southgate, Esq., Leigham Court Road, Streatham, contributed a new scarlet-fleshed Melon named Champion. It was stated to be the result of crossing Read's Scarlet-flesh with Eastnor Castle, and it resembled the latter parent in size. The fruit was, however, deficient in flavour, though the flesh was solid and of good depth.

FLORAL COMMITTEE.—James McIntosh, Esq., in the chair. Messrs. J. Veitch & Sons' group of new and rare plants constituted the chief attraction in the Council-room, and were much admired both by the horticultural and other visitors. A pretty little collection of the small-flowered *Phalanopsis violacea* was shown, ten plants in pots being staged, all flowering and in excellent health. We understand that Messrs. Veitch have secured a large stock of this attractive species, which, though not entitled to rank among the finest forms of the genus, yet possesses a quiet beauty that is very pleasing. The leaves are bright glossy green, and the flowers small, scarcely 2 inches in diameter, the upper petals and sepals being greenish white, and the lower with the centre of the flower bright rosy purple or crimson. A handsome vigorous specimen of the well-known climbing Liliaceous plant *Gloriosa superba* was also shown trained over a flat trellis 3 or 4 feet high. It was bearing several of the characteristic orange-coloured flowers with curiously twisted petals. The charming variegated plant *Phyllanthus roseo-pictus* was represented by a well-coloured specimen, the oval leaves being very clearly mottled with bright rose, white, and green. A small group of *Lilium*, and several plants which were certificated and are described below, completed the collection. The Lilies were *L. auratum* and its beautiful varieties *virginale* and *platyphyllum*, which were certificated last year.

Messrs. H. Cannell & Sons, Swanley, contributed a fine stand of *Verbena* blooms, comprising some dozens of distinct varieties—light and dark purple, lilac, mauve, pink, scarlet, and crimson, some being striped. Very large and handsome African Marigold blooms were also shown, some 4 inches in diameter, globular, and even in form and brightly coloured. Mr. B. S. Williams, Upper Holloway, sent a new *Maranta* named *M. Leitzei*, the leaves being elliptical in form, purple on the under surface, and striped with light and dark green on the upper surface. Mr. H. Eckford, The Gardens, Sandywell Park, Cheltenham, exhibited several seedling *Begonias*, *Coleuses*, and *Pelargoniums*, among the latter the best being *Apelles*, a deep scarlet form with a very large truss. Messrs. Hooper & Co., Covent Garden, sent a plant of the double pink-flowered Ivy-leaved *Pelargonium* *Madame Crousse*, and a rich scarlet *Canna* named *Nardy*. Mr. Hodges, gardener to Edwin Wright, Esq., Gravelly Hill, Birmingham, was accorded a vote of thanks for a flower spike of *Oncidium Lanceanum*, the blooms being of great size, and the contrast between the lilac-purple lip and dark chocolate sepals and petals strongly marked. Mr. J. Cloke, gardener to J. Tinné, Esq., Briarley, Aigburth, Liverpool, was accorded a similar recognition for a new *Croton*, the result of a cross between *C. Weismanni* and *C. Disraeli*, the leaves resembling the latter in form, but possessing more of the colour of the former. Mr. A. Rundell, 70, Fortress Road, Kentish Town, sent some seedling *Fuchsias*; several pretty groups being also contributed from Chiswick. The Tuberous *Begonias* were especially fine, and the cultural commendation awarded for them was well merited. *Torenia*s were also shown in good condition. Some plants of *Cassia corymbosa* were noteworthy, and it is surprising that this showy species is not more frequently seen. The leaves are pinnate, bright green, and the flowers are dark yellow very freely produced. It seems to succeed very well at Chiswick planted out during the summer, and in one of the beds there now some specimens are not only healthy but flowering freely.

First-class certificates were awarded for the following plants:—

Montbretia crocosmaeflora.—This was exhibited from the Society's Garden, but it is one of Mr. Victor Lemoine's novelties. It has narrow tapering grass-like leaves 2½ feet high, and bears racemes of bright orange-coloured flowers. It is very free and attractive.

Tachadenus carinatus (Veitch).—An evergreen plant from Madagascar, introduced in 1858. It is an ally of the *Gentians*, and is sometimes seen under the name *Lasianthus carinatus*. The flowers are tubular with a spreading limb, or what is termed salver-shaped, the lobes being ovate in form and lilac purple in colour. They are borne two or three together on the top of the stem, and are not unlike some of the *Vincas*. The leaves are oval, an inch long, glossy green, and opposite. The plants shown did not exceed 8 inches in height. Messrs. Veitch also received certificates for *Rhododendron* *Duchess of Connaught*, one of the greenhouse forms, said to be a hybrid between *R. Lobbi*, *R. javanicum*, and *R. jasminiflorum*, and

for *Ixora Burbridgei*, both of which had been removed from the Council-room before our reporter arrived there.

SCIENTIFIC COMMITTEE.—Rev. H. H. Crewe in the chair. Mr. W. G. Smith exhibited specimens of Pea leaves attacked with *Erysiphe Marshii*, showing the black conceptacles. He observed that it was particularly fatal to late Peas, which could not consequently be grown easily about London. *Puccinia Menthæ*.—He also showed specimens of this fungus.

Effects of Late Frost in Belgium.—Mr. McLachlan described the great destruction amongst Conifers, Yews, Box, and fruit trees which he had seen in that country. A report was about to be drawn up on the subject.

Lilium speciosum rubrum.—Mr. G. F. Wilson showed leaves decaying apparently from wet, chilled, followed by heat of the sun. He also showed a fine spike of *Gladiolus Lemoinei*, a hybrid between *G. gandavensis* and *purpureo-auratus*.

Pear Fruit and Leaves Diseased.—The Rev. G. Henslow exhibited a Pear in which hypertrophy of the grit had occurred, and which appeared as an efflorescence at certain spots.

Plants exhibited from Messrs. Veitch.—*Ixora Burbridgei*, with splendid trusses of scarlet flowers with the peculiarity of blossoming a long way down the stem—for about 8 inches—thereby producing a very large mass of flowers; *Lindenia nivalis*; *Crinum Verschaffeltianum*, a large handsome plant with spreading leaves striped with white; *Rhododendron* *Duchess of Connaught*, a fine new hybrid form of *jasminiflorum* section involving three parentages.

Proliferous Mignonette.—Mr. W. Balchin of Hassock's Gate forwarded two fine spikes of his *Reseda odorata prolifera alba*, which received a first-class certificate a short time ago. The spikes had emitted lateral branches, all of which were profusely covered with flowers, these lateral branches all issuing from the middle of flowers and occupying the place of the pistil. The scent was very powerful, and much resembled that of Peach or Apricot.

ABOUT PINKS.

PINKS are now in flower, and this is also the time to think about propagating stock for another season's bloom. Considering the sweetness of Pinks it is somewhat remarkable we see so few of them in gardens. Nothing can excel the flowers for filling small glasses, their quiet beauty being only surpassed by the delicacy of their perfume. It would hardly be safe to say that Pinks are difficult to cultivate, for in a sense they are not, but in our garden we have great losses amongst them. Neither *Picotces*, *Carnations*, nor Pinks, succeed well unless they are the very strongest-growing sorts. The beautiful Mule Pinks, both the coloured and the white variety, do not thrive well. Any kind reader who has a few of the above white Mule Pinks to spare would confer a great favour by sending me a few cuttings or small plants.

As to propagation. Laced Pinks are propagated just now from pipings. A piping is simply a growth pulled out of a joint instead of being cut through with a knife. These strike root freely out of doors if inserted in a corner where they can be kept quite cool; or they may be dibbled into a cold frame, either in soil placed in the frame or into boxes. It is hardly possible to fix them in the soil too firmly. It must be remembered to shade them closely from sunshine. When the pipings are well rooted they should be planted where they are wanted to flower. *Anne Boleyn*, which we grow extensively for the sake of its flowers for cutting, blooms later than the laced sorts, and I propagate it along with *Carnations* by layering in August. One of the brightest flowers just now is *Napoleon III.*, which is very closely allied to the Mule Pinks, and like them not easily kept. Then there are the cutting Pinks, of which *Ascot* may be taken as a type—a very useful class for supplying cut flowers, and which are best propagated from pipings inserted at the present time. The double forms of *Dianthus plumarius*, white and pink, are extremely useful, and come into bloom before any of the others.

Of the white there are two forms, one perfectly pure, the other a soft grey when seen in a mass, or when the flowers are cut and tied in bunches. The pure white is the best variety to grow. The simplest method of increasing these is to pull the old plants to pieces in September, at which time the stems are covered with growing roots, and plant them either in nursery lines until spring, or, if convenient, in the places where they are to flower. They make capital edging plants in some positions, either of one colour, or white and pink mixed. We have two rows very beautiful just now, each about 350 feet in length.

Messrs. Dicksons & Co. of Edinburgh have what they term a collection of "cutting" Pinks. We have some of them in flower, the best being these—*Spicata*, a fimbriated white with reddish centre; *Odorata*, fimbriated pink; *Robusta*, a very fine variety, fimbriated pink; *Beauty*, a miniature *Anne Boleyn*, grows about

6 inches in height, and remarkably free. I think these will all prove worth growing. I intend to propagate them by division in autumn.—R. P. BROTHERSTON.

CULTIVATION OF THE GOOSEBERRY IN THE NORTH OF ENGLAND.

THE Gooseberry is generally supposed to be indigenous to the island of Great Britain; but whether this be so or not, there is certainly no country in which it arrives at a greater degree of perfection than in the British Islands. It is always found to flourish best in temperate climates, and where the climate inclines to be cold rather than warm. It is not found, for instance, in Africa, in the South Sea Islands, or between the tropics of either hemisphere, but is found in the temperate parts of Europe, America, and Asia. In the southern and central parts of Africa the plant is perfectly unknown, except in some situations where, among the high mountains, the temperature is low enough to suit its requirements. Persons who have resided a long time in India, and who during that time had never seen a Gooseberry or Currant, speak with delight of the European character which these plants give to the scenery of the mountains in the north of that country.

It is not exactly known when the Gooseberry became an object of cultivation in this country, but it had become a garden fruit in the reign of Henry VIII.; for the old writer Tusser, who lived in that reign, says, in his "Five Hundred Pointes of Good Husbandrie"—

"The Barberry Respes, and Gooseberry too,
Look now to be planted as other things do."

Soon after this period descriptions were given of about a dozen varieties—and among the rest one called the *Blue*, a colour not now found among the hundreds of varieties in cultivation. The fruit was apparently very small when the plant was first brought under cultivation, resembling the small tasteless fruit which is still found in the south of Europe; and in point of size, at least, it does not appear to have improved much for more than a century after Tusser's time, as may be inferred from the surprise expressed by Pepys at seeing Gooseberries as big as nutmegs. At every subsequent period (says an interesting and useful little tract called "The History and Cultivation of the Gooseberry," printed at Sheffield, and from which much of the information in this article is taken) the Gooseberry has claimed a share of attention from horticulturists. It has found a place alike in the garden of the nobleman and of the cottager, and has amply rewarded by its abundant and profitable produce the skill of the gardener, and by its increased size the care of the amateur grower. Indeed, the success which has attended its culture under the spare house of the artisan seems to entitle it to the distinctive appellation of *the poor man's fruit*.

It has been ascertained that under favourable circumstances the Gooseberry will attain to a considerable age and grow to a great size. Bushes have been grown to measure from 12 to 18 yards in circumference after being planted about fifty years. The garden of Sir Joseph Banks at Overton Hall, near Chesterfield, contained at one time two remarkable Gooseberry plants. They were trained against a wall, and the branches of each measured upwards of 50 feet. In this country the plant shows a marked preference to cool situations. The fruit in the southern parts of England is not nearly so good as it is in the north, and in general the flavour of the Scotch Gooseberry is much superior to those produced in any part of England; while in Scotland itself, the Gooseberries grown about Dundee, Aberdeen, and Inverness exceed in flavour those grown in the southern counties.

As far as regards mere size and appearance, however, the Gooseberries of Lancashire are unequalled by any in the world. Growers there have devoted so much attention to them as to have attained to almost absolute perfection in the matter of their cultivation. In the counties of Lancashire, Cheshire, Staffordshire, and Warwickshire, the striking improvement which has taken place in the cultivation of the Gooseberry is to be attributed less to the professional gardeners or market gardeners than to the mechanics who very generally spend their leisure time in the pleasing occupation of gardening, and particularly in the culture of the Gooseberry; and it is to their industry and perseverance that we owe the production of most of our largest and best varieties. The custom of gardening has a tendency to improve both the health and the morals of the people. Any pursuit which makes men acquainted with the peculiarities of vegetable economy, in however small a degree, has a beneficial effect upon the heart and understanding; and it is certainly better for working men to vie with each other in raising large Gooseberries than in those games of chance and in cruel sports to which the leisure hours of the working classes have

been too often devoted. The one is a rational and innocent emulation, the other a degenerating excitement or a brutal indulgence.

The origin of the different kinds of Lancashire Gooseberries is often indicated by their names, which are generally fanciful, often local and personal, sometimes even absurd, but frequently characteristic of the manners of the county in which they are produced. Galloper, Green Corduroy, Tom Joiner, Lancashire Witches, Dan's Mistake, Roaring Lion, Richmond Lads, Cheshire Lassies, Jolly Miner, Porcupine, Jolly Painter, Top Sawyer, Crown Bob, &c., are sufficient specimens. It is not to be expected that so much attention should, however, be given to the cultivation of the Gooseberry in the counties named without the operation of some external stimulus; therefore Gooseberry shows have long been established in different parts of Yorkshire, Lancashire, and Cheshire. The time and conditions of these meetings are determined by certain rules, and the minor details of each show are generally settled in the spring, from which time until the day of the exhibition each competitor entered in the list subscribes a small weekly sum towards the purchasing of prizes. The prizes are sometimes given in money, but often in kind. The exhibition of the fruit and adjudication of prizes generally take place in July or August, and the weight of the different sorts is published in the report of the shows given in the newspapers of the town where the show has been held, while the result of the shows in various parts of the kingdom have for a long time been printed in Manchester, and circulated chiefly among the growers, in what is called "The Gooseberry Book."

We may now state a few particulars to illustrate the progress which has been made in the cultivation of the Gooseberry. About a century ago it was considered an extraordinary thing when a Gooseberry was grown which weighed down the old spade-ace guinea which was then in circulation. Berries were soon after produced that weighed twice as much; and now, little would be thought of show fruit which would not weigh five or six times as much. The largest Gooseberry on record was a handsome yellow fruit called Teazer, which was shown at Stockport in July, 1830, and weighed 32 dwts. 13 grs. The heaviest red berry on record was the Roaring Lion, exhibited at Nantwich in 1825, and weighed 31 dwts. 16 grs. The heaviest white was a fruit of The Ostrich, 24 dwts. 20 grs., shown at Ormskirk in 1832, in which year the largest red was only 27 dwts. 13 grs. In the same season a seedling green was exhibited at Nantwich of the weight of 30 dwts. 18 grs. To this statement of the weight to which the fruit has sometimes been grown, it may be of interest to add that a seedling plant of reputation has been known to produce when sold upwards of £32. This is a rare case; but it is not at all unusual for twenty guineas to be brought in by the distribution of a single bush.—J. G. W. (in *The Gardener*).

ORCHIDS IN FLOWER AT KEW.

THE Orchid house at Kew is now looking very gay, and several plants that are now in flower are of special interest. Amongst them during a recent visit we especially noted a grand display of *Aerides odoratum*; their long drooping racemes of pure white flowers which are marked with light lilac are very showy, and the beautiful perfume they exale entitles it to a place in every collection. This species is grown in quantity at Kew, for there were several large specimens in flower. *Aerides japonicum* is a pretty dwarf species, and flowering freely in the cooler house; the flowers are pure white blotched and barred with lilac, and scented similar to *A. odoratum*. This is a very desirable species to grow, and for the greater part of the year it seems well satisfied with the temperature of the *Odontoglossum* house. *Burlingtonia fragrans* is a little gem; the white and yellow flowers are thickly set on a drooping raceme, and are always appreciated whenever in flower. *Cattleya superba* is not often met with in flower; it certainly is worth seeing, as it is undoubtedly one of the best of the genus to which it belongs. It is considered by many to be a difficult plant to manage, but at Kew it seems quite at home growing on a piece of Fern stem suspended from the roof in the warm compartment. The flowers are very showy, the sepals and petals spreading, of a bright purple colour. The lip has a peculiar curve forming quite a hook, colour deep purple; the throat or base of the lip is white with a broad stripe of canary yellow. *Catasetum tabulare* is a peculiar flower; the colour of the flower is not the brightest, but the peculiar tongue-shaped lip gives the flowers a quaint appearance. *Dendrobium Calceolaria* is in good condition; one plant had a dozen long drooping spikes, the sepals and petals are pinkish yellow in colour, the pocket-shaped labellum with its interior blotch of dark brown makes it extremely handsome. *Dendrobium Tattonianum*, an Australian species, is

beautifully in flower; the individual flowers are not large, but when seen with several racemes of flowers fully expanded it is well worth growing. Some species of *Epidendrum* are always in flower, the most conspicuous at the present time being *E. vitellinum*; amongst the others of less value may be mentioned *E. aromaticum*, *E. virens*, *E. radiatum*, and *E. selligerum*.

Oncidium ampliatum is a good old kind; the light yellow flowers are very telling, and show off to great advantage amongst the surrounding dark green foliage. *O. sphacelatum* and *O. leucochilum* both do their share towards making the house gay; the same may be said of *Lycaste aromatica* and *L. Deppei*. *Stanhopea oculata* and a species named *grandiflora* were in good condition. The latter may be pronounced to be a first-rate Orchid; the flowers are large, pure white, or creamy white; the peculiar-shaped leathery labellum is faintly marked with crimson. Amongst the other plants in flower are *Cymbidium pendulum*, *Sobralia macrantha*, *Mesospinidium vulcanicum*, *Odontoglossum pulchellum*, *O. cordatum*, and *Masdevallia Harryana*.—W. K.

PORTTRAITS OF NEW AND NOTABLE PLANTS.

KNIPHOFIA UVARIA VAR. MAXIMA. (*Nat. ord.*, Liliaceæ).—“This is the plant now widely spread in gardens under the name of *Kniphofia*, or *Tritoma maxima* or *grandis*. Though for garden purposes it has an individuality of its own, I cannot find any characters to separate it specifically from the well-known Red-hot Poker plant, *Kniphofia Uvaria*, from which it differs by its more robust habit, longer and broader leaves, stouter scape and rather longer flowers, with more decidedly exerted stamens and style. The drawing was made from plants which flowered in the herbaceous ground at Kew in October, 1879, which we received from Max Leichtlin, Esq. It is a native of the Orange Free State, whence we possess dried wild specimens gathered by Mr. Thomas Cooper in 1862.”—(*Bot. Mag.*, t. 6553.)

HECHTIA CORDYLINOIDES. (*Nat. ord.*, Bromeliaceæ).—“This fine new Bromeliad is just like the three *Hechtias* already known (*H. glomerata*, *Gheisbreghtii*, and *argentea*) in habit and leaf, but it differs from them entirely in inflorescence, its minute white flowers arranged in ample panicle, recalling *Cordylina* and *Dasyllirion* more than any recognised Bromeliaceous type. The genus is exclusively Mexican, and represents in the northern half of the continent *Dyckia* of Brazil and the Argentine territory, from which it differs mainly by its polygamo-dioicous flowers. The drawing of *H. cordylinoides* was made from a plant that flowered in the Cactus house at Kew in the summer of 1880. We have had the plant some time, and have no precise record of its history, but there is in the British Museum a dried specimen of the same or a closely allied species gathered by Dr. Schott on the Cerro de Maxeana, in the province of Yucatan.”—(*Ibid.*, t. 6554.)

BEGONIA SOCOTRANA. (*Nat. ord.*, Begoniaceæ).—“A beautiful species, of which tubers were brought by Dr. I. B. Balfour from the dry and hot island of Socotra, in the Indian Ocean, off the coast of Arabia, one of the last places in the world in which a *Begonia* could have been expected to occur. From the geographical position of that island the affinity of this discovery may be conjectured to be either Asiatic or African, and, upon the whole, though referable to none of the sixty sections of the genus founded by Klotzsch and A. de Candolle, it must, I think, be placed in the African one of *Augustia*, from the characters of which it differs chiefly in the male perianth having four segments, in the shorter filaments, rounded top of the anther, in the six lobes of the female perianth (instead of five), and the untwisted arms of the style—characters all of which, except the last, occur in the Natal *B. geranioides*, to which *B. socotrana* is unquestionably closely allied. This is only one of the many most interesting plants brought by Dr. I. B. Balfour from an island which he alone has had the good fortune to explore, and the publication of the results of which exploration are awaited with impatience by botanists no less than horticulturists. The Royal Gardens are indebted to Dr. Balfour for tubers, which he liberally presented to that institution in April, and which flowered in December, a season when such a plant is doubly welcome to the cultivator, as the similar *Begonias* of the Andes, which make so magnificent a show in the conservatory during the summer and autumn months, are then all long past flowering. It is easily propagated by its tubers, and as the Kew plants continued in flower for two months in a warm conservatory, it will doubtless prove a great favourite.”—(*Ibid.*, t. 6555.)

MUSSCHIA AUREA. (*Nat. ord.*, Campanulæ).—“This is the most beautiful of the indigenous plants of Madeira, of which Mr. Lowe, in his *Manual of the Flora of that island*, says—“Nothing can exceed the singularity and splendour of a fine panicle as it occurs on its native rocks; almost wholly of a rich golden-yellow,

and shining as if varnished, in full contrast with the equally bright shining dark green foliage.” And again—“Had this plant grown in Italy, it might well be supposed to have suggested the idea of the famous golden branch of the Cumæan Sybil to the Roman poet.” Though more beautiful, in point of singular appearance it falls short of its only congener, *M. Woollastoni*, also a native of Madeira, which has larger and very pale flowers, surmounted by a columnar green style with five spreading and recurved arms, each one-half to nearly an inch long. With regard to this last species, it may be well to record here Mr. Lowe's observation (*Manual*, p. 577) that the flowers in its native state are much more coloured than under cultivation, and the corolla is of a dull ochreous yellow streaked with dull red, giving it somewhat of a purpurascence or lateritious tint. *M. aurea* is a common plant on the sea cliffs of Madeira, and also ascends the ravines, rooting deeply into fissures of perpendicular dry sunny rocks. It was introduced into England in 1777 by Masson, a collector sent from Kew to South Africa, who visited Madeira en route to his destination. The specimen figured flowered at Kew in July and August of last year. The whole plant abounds in milky juice.”—(*Ibid.*, t. 6556.)

GARDEN GOTHs AND FLORISTS' FLOWERS.

IN a peculiar mixture of gospel and gush a contemporary informs us that all the horticultural papers, save one, have become “advocates of weeds,” and that it is “our bounden duty to warn the public against these Goths of the garden, because they are preachers of mortification and aim at the revival of flagellation in the world of taste and beauty.” Very neat that; nothing verbose about it, but pithy, perspicuous, and clear. How the florists will like it, practical men that they are, and haters of nonsense!

In future there must be no discussion on flowers in the gardening press. Everything is settled by our infallible dictator in his little “world of taste and beauty.” Editors, be careful. If a writer thinks a blue flower is prettier than a red one it is your opinion, not the writer's, and you are the “advocates and exponents of blue.” This is very serious, and you will become “preachers of mortification,” for, of course, what your correspondent may consider right the oracle will rule wrong; it is his “bounden duty” to do so.

I would not have you, Mr. Editor, distinguished as a florists' nurse; but even at the risk of this I think you will permit me to say a word in favour of florists' flowers, just as you have permitted others to extol them. Nay, you cannot be an enemy of these flowers, for have you not prepared a manual upon them, which has been more largely circulated than any work of the kind in our language? But much as I love these flowers I decidedly refuse to go frantic if some individual prefers a single Rose to a double one; yet for the so-called florists' flowers I claim pre-eminence. They are beautiful in themselves, in their colours, markings, symmetry. They to my mind represent the tractability of Nature, which is guided to an end by the act of man. They remind me of worthy men of the past—devoted, persevering students of Nature, who have laboured long in the cause they loved, and have written their names in living colours and on tablets which, if fragile in character, are durable, and if old are yet new every summer. Such associations as these impart a charm to the flowers that enhances their value. I have grown them long and exhibited them, even from youth upwards to the time of the “serc and yellow leaf,” and I hope to love and grow them to the end. What have we amongst flowers more magnificent than the Rose, more stately than the Hollyhock, more noble than the Dahlia, more charming than the Carnation, more refined than the Auricula, more brilliant and varied than the Pelargonium? and there are others in their way as beautiful as these. It is my experience that whenever these flowers are seen in their best condition they are admired greatly by the majority who inspect them. I wish that more would become cultivators as well as admirers. The occupation is as healthy as it is delightful, and not the less so because the pleasure is not a selfish one. Every true florist desires others to emulate him and excel him if they can: hence the societies that are established, and which deserve support and success. A wider brotherhood is hoped for and worked for, and if half the inhabitants of this island were enrolled in the florists' ranks the results, I am convinced, would be distinctly and decidedly beneficial.

I do not ask you to endorse all that I say, Mr. Editor; nor desire your correspondent “SINGLE-HANDED” to cease his ardency for his wildings. The bomb he has thrown in the camp and caused such consternation will do no real harm to earnest men. His flashes of fancy may be too much for the unstable, and may lead to temporary mental derangement of those of ultra sanguine temperament; but the effect on the great body of cul-

tivators will be to stimulate to further effort, and determine that the flowers they cherish shall not be overgrown by pretty weeds, nor even the sweet wild Rose.—L. M.

[Our correspondent's remarks are just; we are true gardeners, and can admire single or double flowers alike according to their merits, and hence we afford scope for the discussion of these or any other horticultural subjects that are capable of being treated from different points of view.—ED.]

NOTES ABOUT CHRYSANTHEMUMS.

THERE can be no doubt that the Chrysanthemum is a general favourite and popular flower, except with those who admire flowers only for their fragrance. I know ladies who would prefer a single spray of Mignonette or Lily of the Valley to a barrowful of Chrysanthemum blooms, yet they tolerate their growth because they produce a display as well as variety, thus adding cheerfulness to houses or conservatories during the dark gloomy days of November and December. They are invaluable for many purposes of decoration, and to do without them where flowers have to be produced in abundance at that season of the year would be almost impossible. When large blooms are grown for exhibition they certainly are very beautiful when staged, but are nearly useless for other kinds of decoration. They look very well in large houses amongst Camellias, Ferns, Palms, and other large plants, and yet in many gardens they could not be accommodated; if they could I cannot see the utility of growing plants for this purpose on the same system as if growing for exhibition. A plant grown, say, from March to November to produce one bloom, or at the most three, is not a system that is ever likely to become general with those who grow the plant for usefulness or for effect. Again, the Chrysanthemum certainly looks beautiful where trained to represent a pincushion with a number of pins neatly arranged. Such plants may gratify the taste of those who admire formality. This sort of training will now be occupying the attention of exhibitors until November; it is considerably overdone, and the plants when finished are most unnatural-looking objects that can possibly be imagined.

The grower for cutting and decoration is often ridiculed by those who practise the close training because his plants are not so neatly trained; the exhibitor forgets the two have different objects in view. One grows the plants so that when staged with others the whole is in harmony and the taste displayed effective throughout; the other grows for public exhibition. Arrange these formal plants with others for effect, and they break the display and look anything but beautiful. I once grew a number of close-trained specimens, and after all the labour in training I was disappointed with them when they had to be arranged with other plants. My only object in alluding to this formal training is to deter cultivators who intend growing for decoration, and have decided to have formal plants for that purpose after seeing them at some past exhibition. The labour spent in growing half a dozen close-trained plants is as much as need be spent in growing fifty others more suitable for effective decoration.

Plants propagated now or any time during the next two weeks make capital specimens for arranging with plants of a dwarf nature. They root readily if kept close in a frame and shaded during the day from strong sun. Cuttings of Pomponé varieties should be inserted in 5-inch pots, about six in each pot, and the whole when rooted allowed to grow on together. The large-flowering kinds, such as Elaine, Empress of India, Queen of England, and others, can also be grown on the same system if deemed advisable, or singly in 4-inch pots. They should be grown on without stopping when rooted, and each large-flowering kind should only be allowed to carry one bloom, all others being removed as soon as they can be seen. The Pomponés need not be so severely disbudded. James Salter is a capital early-flowering kind, and when a few cuttings are grown, as recommended for the Pomponés, they look remarkably well. When well rooted and hardened off they must be grown outside and treated the same as the general stock.—SCIENTIA.



KITCHEN GARDEN.

POTATOES of the earlier varieties are, from the unusually long period of dry weather, quite ripe, and should be taken up at once, as

with a change to wet weather it is very probable the disease will attack them. The tubers required for use should be selected and stored away, while those for seed may be placed in an open shed so that they may be thoroughly dried; the ground will then be available for Brassicas for autumn, winter, or spring use, which should now be planted with as little delay as possible, also late crops of Broccoli. Cauliflowers for late use and lifting for protecting in frames may still be planted. Sow Cabbage seed from the 6th to the 8th of next month for the main crop, pricking off the earlier-sown as soon as fit; the advantage resulting from this treatment amply compensates for the time occupied in its performance. About the 10th of next month the main sowing of Tripoli Onions should be made, also Winter or Prickly Spinach, allowing a distance of 18 inches between the rows. A sowing should be made of Lettuce for late autumn and winter use of such kinds as Hicks' Hardy White, Bath or Brown Sugarloaf, All the Year Round, and Stanstead Park. Carrots for spring use may now be sown in drills about 10 inches apart in a somewhat sheltered situation where the soil is of a friable nature. Another good breadth of Turnips should be planted in an open situation—Early Snowball, Six Weeks, Veitch's Red Globe, and Orange Jelly being suitable varieties. Sow Chervil and Corn Salad, these will now stand for late use. Continue to sow Endive, making the last sowing the first week in next month, and where this is in request a good breadth should be planted from the earlier-sown plants. Take advantage of suitable weather for earthing up early Celery, but before doing so make sure that the roots are in a sufficiently moist soil to ensure vigorous growth. Late Peas, also Runners and Dwarf Beans, should receive a liberal supply of water or liquid manure to keep them in bearing, as they require in dry weather a good soaking at least once a week. To have Cos Lettuces in good condition it is a good plan to mulch the soil with half-decayed manure between the rows, and water the whole surface occasionally. Autumn-sown Onions, Shallots, and Garlic may be taken up when growth has ceased, spreading the bulbs on the ground for a few days so that they may be well dried before storing. Cut and tie up Basil, Marjoram, and other herbs for drying when they are in flower and quite dry. Attend to stopping and thinning Gherkin and Ridge Cucumbers, allowing them sufficient moisture, similar remarks applying to Tomatoes, the laterals of these being kept closely pinched.

FRUIT HOUSES.

Vines.—Late Grapes must be early and thoroughly ripened, and to secure this they should now be colouring, and then they—even such varieties as Gros Colman, Gros Guillaume, &c., that take a long time to ripen—may be expected to be fully ripe by the middle or end of September, and any not then ripe will stand a poor chance of becoming so or of keeping satisfactorily. All late Grapes require a high temperature to finish them off, and were this accorded their flavour would not be so much condemned as it now is. To effect the ripening thoroughly a temperature of 70° to 75° should be maintained by artificial means, with a circulation of air constantly. Ventilate houses freely that contain Lady Downe's till the scalding period is past, which is when they have commenced colouring, keeping the night temperature at 70°. Do not allow the inside borders to lack moisture, applying weak liquid manure or guano water in a tepid state in the early part of the day. Keep the laterals in bounds by pinching, not allowing them to become crowded and so necessitate their removal in large quantities, as this gives a check to the root-action and not infrequently results in shanking. Late Hamburgs need not be hurried, but should have fire heat if necessary to maintain the night temperature at 60° to 65°, and 70° to 75° by day, allowing an advance to 80°, 85°, or 90° from sun heat. A good proportion of atmospheric moisture will assist the swelling, especially in the latter part of the day, keeping the borders thoroughly moist by applying tepid liquid manure at intervals of about a week. A temperature of 60° is sufficient for Vines with the fruit ripe. Should excessive rains set in early Vines in outside borders will be induced to continue in growth, which should be prevented, stopping all lateral growths as produced, and protect the border from further moisture so as to induce early maturation and rest. Keep newly planted Vines in full growth by the maintenance of a humid atmo-

sphere, and frequent surface supplies of water to the border to encourage surface-rooting.

Melons.—During dull weather fire heat will be necessary for plants setting their fruits as well as for those ripening. Earth up those plants that have just set their fruit, keeping the laterals closely pinched to one joint, thinning if necessary to secure plenty of light and air for the principal foliage, syringing freely on fine afternoons, and supply tepid liquid manure about twice a week. Continue to support heavy fruits by means of tables, and be sparing in the supply of moisture directly the fruits begin to ripen, but do not allow the foliage to flag. Plant out the latest plants without delay, and encourage them by every means to make strong growth, securing to them a minimum temperature of 70° to 75°, rising to 90° or 95° in the afternoon after closing, with a moist atmosphere and as little shade as possible. In pits and frames the last batch should be growing freely, and should have every alternate lateral removed, stopping the leaders when they have travelled two-thirds of the distance. When coming into flower apply a good lining and leave the ventilators open constantly, fertilising the blossoms from day to day as they open until a sufficient quantity is set and swelling.

Cucumbers.—Pot off the plants for autumn fruiting as they become ready, removing the points of those for planting in frames above the second rough leaf, those for houses trained to a small stick, and the laterals rubbed off to the height from the surface of the bed to the trellis. Complete the preparation of the fermenting materials and soil, also cleansing the house. Should the weather be dull a little fire heat will be essential to the health of the plants, securing a minimum temperature of 65° to 70°, and 5° more by day. Add a little fresh soil to the surface of beds with plants some time in bearing, and supply tepid liquid manure, shading only to prevent flagging. Fumigate upon the first appearance of aphides, and apply flowers of sulphur for mildew, and quicklime as an antidote to canker. Keep the growths fairly thin, cutting out old growths and laying in young fruitful growth.

Figs.—The second crop of the early-forced trees in pots will be ripening fast, and the supply of water must be carefully regulated, or the fruit will be deteriorated in flavour; and the syringing must cease, other means being taken to eradicate red spider if it has obtained a footing. An insecticide applied with a brush to the under side of the leaves, though a tedious is a certain means of destroying the pest. The second crop of fruit on early-forced trees in borders will soon be ripening, and will need a circulation of dry warm air constantly. As soon as the fruit has been gathered the ventilation must be continued to ripen the wood, and when this is effected trees in pots may be plunged in ashes out of doors in a warm situation. It is of primary importance that the wood be thoroughly ripened, especially in the case of trees subjected to early forcing. The latest forced trees that ripened the first crop in June have the second crop swelling, and must be liberally supplied with water, or if necessary with liquid manure, and be freely syringed.

Pines.—Take advantage of the space, rendered available by the plants started early in the year having ripened their fruits, to give successional plants the benefit of more room, a sturdy growth being essential to the production of fine fruit. Suckers from the plants above alluded to will now be in a fit state for potting. In the preparation of beds at this season care must be exercised, particularly in the case of those composed solely of fermenting materials. Beds having had a liberal supply of new material in spring will scarcely need any now. Dig to a depth of about 18 inches, and if necessary add a foot of new tan, incorporating it with the old to the depth named. If absolutely necessary to make new beds 2 feet of new tan will be sufficient. A cool moist pit or frame is the best for rootless suckers at this season, with a fermenting bed at about 90°. In potting ram the fibrous loam firmly in the pots and about the base of the suckers, water well, and in plunging cover the surface of the soil in the plunging material, so as to prevent its becoming dry. Shade and ventilate a little when the temperature reaches 85°.

Cherry House.—The trees should now be exposed to the air as much as possible, removing the roof lights. This will have the effect of arresting premature growth, to which the Cherry, in common with

other stone fruits subjected to forcing year after year successively, is peculiarly liable. Syringe occasionally to remove red spider from the foliage, and black aphides must be destroyed by means of tobacco water or some approved insecticide. The border must not be allowed to become parchingly dry, but a good watering may be afforded, or for weakly trees liquid manure is beneficial.

PLANT HOUSES.

Greenhouse.—The early Pelargoniums should now be cut down, allowing the soil to become dry before doing this. The Show varieties or other large-flowered forms will bear heading more closely in than the Fancy sections. Cut those that are as large as required to about a couple of eyes from the base of last season's growth. Place the plants in a pit or frame, and keep rather close until growth has commenced, sprinkling in the afternoon of fine days, being careful not to make the soil very wet. Later plants may, as soon as the flowering is over, be placed outdoors in a sunny position to ripen their wood. *Lilium auratum* coming on for later flowering will need copious supplies of water, surfacing the soil with old cow dung, and keep the plants well supported with sticks. Those that have flowered should be placed outdoors and well attended to with water so as to preserve the foliage healthy, thereby accumulating as much strength in the bulbs as possible for next season's flowering. *Lilium speciosum* vars. with a number of bulbs in a pot should be well tied out, so as to admit plenty of light and air. Keep a sharp look-out for aphides, afford liquid manure liberally, and they will retain the lower leaves until the flowering is over.

Kalosanthes cuttings may now be inserted. They strike freely in sandy loam, taking shoots of about 6 inches length, stripping off the lower leaves one-third of their length, and insert them singly in small pots, or half a dozen in a 6-inch if it is desired to obtain good-sized plants in a little time. They only need a cool pit or cold frame, and must not be overwatered.

Hardwooded Plants.—Such plants as *Acacia*, *Adenandra*, *Aphelaxis*, *Boronia*, *Correa*, *Darwinia*, *Eriostemon*, *Leschenaultia*, *Pimelea*, *Pleroma*, *Tremandra*, *Nerium*, and *Pultenaea* are better for being placed outside: the hardening process which the growths undergo in the open air stops the further extension of the summer wood, and causes at once the formation of flower buds. In doing so they must not at first be placed where they will be exposed to the direct rays of the sun at midday. The pots should stand on a bed of ashes 6 inches thick. Syringe the plants in the afternoon, directing the water against the under side of the leaves. *Acrophyllum*, *Dracophyllum*, *Hovea*, *Gompholobium*, *Roella*, *Phcenocoma*, *Witsenia*, and *Statice* are better not subjected to open-air treatment, as they set their blossoms freely when in a healthy condition without exposure.

Young plants of *Azaleas* being grown as quickly as possible and started early are setting their buds, which should at once be pinched out, and the plants liberally supplied with heat and moisture to secure a second growth. Directly the buds form they must be removed, for if delayed they will merely make a short growth and form flower buds again. Keep thrips and red spider under by syringing. Older plants that flowered early, and which from being in heat and moisture have completed the growth and set their flower buds, may be placed outside, treating them similarly to the hardwooded plants as before advised.

Ferns.—Small plants that were potted in spring, or such as did not require more root space in spring, will now probably require potting. *Gleichenias* should never be allowed to suffer from their creeping rhizomes extending over the rims of the pots, and they must never be allowed to suffer for want of water, as if the young fronds flag they never afterwards attain their proper size. *Adiantum cuneatum* with *Pteris serrulata*, grown for cutting or decoration in 6-inch pots or smaller, have made good growth, and should be placed in a position where they will become properly hardened before winter. If grown in a moist atmosphere and much shade they must not be placed where they will be exposed to the sun, or they will lose colour. Tree Ferns must not suffer through insufficient supplies of water, or the fronds will be seriously crippled, especially such as *Cyathea dealbata* and *Alsophila excelsa*.

THE BEE-KEEPER.

UNFINISHED SECTION BOXES.

THE termination of the honey harvest is nearly certain to leave in the bee-keepers' possession a number of sections either half finished so as to be unmarketable, or with that tantalising approach to completion which gives them their full quota of honey without enabling them to secure good prices. A correspondent asks me to give information in reference to this difficulty, which is so common, and has so much to do with profit in these days when sections almost cause extracted honey to be forgotten, that I make it the subject of a few lines.

If several hives are engaged in the work of filling sections of the same size we treat them all alike during the continuance of the honey flow. Every two or three days the racks are uncovered in order that the completed boxes may be removed. All parts of the rack do not progress with equal rapidity, and want of observation here is largely the cause of the difficulty many bee-keepers have in getting their boxes sealed. If the space between the hive and rack is all open, the boxes in the centre lying over the brood nest are sealed most quickly; but if the bees be admitted only towards the end of the rack, then the part immediately over the opening will make most rapid progress. (This fact, let it be remarked in passing, condemns the zinc queen-excluder as always reducing the honey yield.) We have standing by our side the sections furnished with foundation which are to substitute the full ones; but if the latter are drawn out and at once replaced by the former, we have boxes which will require some days for comb-building and storing occupying the best place for sealing, while those that only need their finishing touches are kept in an inferior position for receiving them. As a consequence, at our next visit the foundation previously given will be found to be perhaps half stored, while the surrounding boxes will not be in so many cases completed as would have been had they been transferred to the best position. It is wise, therefore, whilst avoiding overmuch disturbance, to put the most advanced boxes into the spot where most rapid work is done, giving the empty ones to the spaces left.

If the honey yield is slackening and promising shortly to close, the contraction of the rack is more desirable than filling up gaps; we thus concentrate the bees and get more rapid progress in the boxes remaining. If, however, the stock is extremely strong and seeming to do better than some others, rather add empty boxes than contract, for a reason which will appear presently.

At length the yield is so reduced that no progress is made, and the danger of the bees carrying down the unsealed honey threatens us. We now take off all sections from the hives which seem doing least, with the idea of giving them for completion to the most vigorous stock, which will have to be helped in its work by being fed with diluted extracted honey. The boxes removed and the rack carefully taken off, we examine the combs, and pass as many of them as our objects may make desirable through the extractor. We must be careful in making our selection of combs should we take those not containing fed syrup. The honey will now require dilution. Newly gathered nectar contains very varying quantities of water, depending upon source and season; but it is perhaps a fair average to say that evaporation reduces five pints of gathered nectar to one pint of honey. The beginner at this work will perhaps argue, "What is the use of my adding water which will require to be again removed?" but experience shows that unless the quantity be at least doubled by dilution immense loss is the result. To prove that bees prefer to handle thin honey, take a comb half filled with sealed store, pour diluted honey into the empty cells, and then uncap the rest and expose somewhere in the apiary. The bees will crowd upon the former, and until it is gone will almost neglect the latter. The method of feeding must be determined by the hive. I feed thus at the hive door upon a stage, which prevents all possible robbing, and the trouble is almost nil. The Americans feed largely under a division board which does not quite reach the floorboard. For continuing this work into quite chilly weather I prefer a feeder which I exhibited last year, and which gives the bees an uninterrupted line of food at the base of the hive. The feeder can be constantly refilled without removal. All our stocks will at length have lost their sections save one, and this one will be continually provided with the partially completed boxes we are keeping in store until we have no others to supply. The reduction of the size of their crate will then follow. A few points will have to be attended to here, and amongst these none is more important than keeping up a steady supply, otherwise the bees begin to seal before the comb

is duly thickened, and then when food is again given they draw out the neighbouring unfinished cells and give the comb an ugly uneven face. The sections retained for completion ought also to be kept in a warm place.—F. CHESHIRE, *Avenue House, Acton, W.*

THE MOORS.

PLEASE say what hives I should select to send to heather to secure good results in quantity and secure transit—I mean tops or stools.—K. E., *Montrose.*

[The weather during the period of heather bloom is in a majority of seasons too cold and unsettled to make it profitable to remove bees to the moors unless special precautions are taken to secure stocks fit to store a surplus, even in the most untoward circumstances. The above question does not, therefore, in my opinion, admit of a categorical answer. If bar-frame hives are used, special means must be taken to prepare for the moors. Having several stocks to select from, those with young fertile queens should be chosen, and a few days before the heather blooms these should be strengthened to the fullest extent by removing all combs not well filled with brood or eggs, replacing them with full brood combs from the hives to be left at home. In this way the stocks to be removed may be expected within a few days to have a superabundant population fit for the exhaustive work on the heather. When removed to the moors, after of course securing the combs from shifting and giving abundant ventilation, a pile of supers should be placed in position consisting largely of those partly finished on the Clover. A skepful of driven bees minus their queen may at the same moment be run in at the entrance to make assurance doubly sure. Under such circumstances success is certain if honey is to be had at all; for it is well to remember that bees dwindle very rapidly on the heather, and ordinary stocks may thus in a few days become too weak for profitable work.]

In the case of skeps being selected, those with old combs should be preferred, having, as before, young queens. Thus stocks that have swarmed may be selected. These should of course be such as to permit of liberal supering. For every stock thus selected a skepful of driven bees from other stocks should be taken, to be run in as before, immediately the stocks are located on the moor. The gorged and alarmed state of the bees after the journey will render any precautions in thus uniting almost superfluous.

If run honey is wished for, a second storey, whether of wood or straw, should be fitted with full sheets of comb foundation and placed instead of supers. It pays to press down combs thus obtained, and as the extractor cannot be used with ripe heather honey I know of no better means of securing it in its purity.

If time permitted much may be done a week or two before the heather blooms to prepare good stocks for removal. The period of scarcity between Clover and heather may be tided over by very slow but continuous feeding with extracted honey, brood-rearing thus promoted, and spirit maintained among the earnest workers. Supers may be selected or produced furnished with comb ready to fill, &c.

The stocks that are to remain at home, weakened as they are by the removal of part of their brood or bees, should be treated as in spring—that is, encouraged to continuous breeding till the deficiency is made good. Pure sugar syrup fed in small quantities at first, and after a week or two quite rapidly, will make such stocks quite equal to those that return from the moors.

Those who are fortunate enough to have locations already within reach of the heather should treat their stocks similarly—that is, select certain stocks to be strengthened at the expense of others. Those standing side by side may be united under proper precautions, a nucleus being formed from one of the stocks in order to preserve one of the queens if desired. Only combs containing brood should be allowed in the united stock, the rest being stored away to assist in wintering, or left in the nucleus if strong, or extracted. A second storey of old combs, though excellent as a means of getting large returns in Clover by the extractor, is not to be recommended when heather is in view. It is only by severe mashing and mixing of pollen, &c., that the heather honey can be taken from such combs. I therefore recommend for those who prefer run honey that the second storey be filled with comb foundation only. A sheet of foundation to fill a Woodbury frame costs 4½d., which is a mere trifle on the value of the 5 or 6 lbs. of honey that may be stored in it; besides that it will be worth 3d. or so afterwards as raw wax.

The approaching heather season promises fairly to be a good one. The bloom is early and the signs are in favour of suitable weather. In Scotland stocks were never in better condition to take advantage of it, for it has been pre-eminently a breeding season. No glut of honey to check breeding has taken place, only a steady though too slow income of it. Even till now (July 25th)

stocks are still swarming. I had four top swarms last week. Let us hope the present may equal, if it does not exceed, the splendid autumn of 1880.—WILLIAM RAITT.]



Select Carnations and Picotees (E. Milton).—The following are six excellent varieties in each class:—*Scarlet Bizarres*: Admiral Curzon, Dreadnought, Sir J. Paxton, Mercury, Lord Napier, and Mars. *Crimson Bizarres*: Rifleman, J. D. Hextall (sometimes pink and purple), Lord Milton, Lord Raglan, John Simonite, and Captain Stott. *Pink and Purple Bizarres*: Sarah Payne, William Murray, Unexpected, Falconbridge, Eccentric Jack, and Satisfaction (pale, but very fine petals). *Purple Flakes*: Dr. Foster, James Douglas, Squire Maynell, Florence Nightingale, Mayor of Nottingham, and Squire Trow. *Scarlet Flakes*: Clipper, Sportsman, John Bayley, Annihilator, Mr. Battersby, and Dan Godfrey. *Rose Flakes*: John Keet, Sibyl, James Merryweather, Apollo, Rose of Stapleford, and Maid of Athens. *Heavy Red Picotees*: John Smith, Princess of Wales, J. B. Bryant, Master Norman, Mrs. Dodwell, and Brunette. *Light Red Picotees*: Thomas William, Violet Douglas, Clara, Thomas Jivons, Mrs. Bower, Lucy (medium), Rev. F. D. Horner (medium), Wm. Summers (medium). *Heavy Purple Picotees*: Zerlina, Alliance, Isabella, Silvia, Mrs. Douglas, and Lizzie Tomes. *Light Purple Picotees*: Mary, Ann Lord, Her Majesty, Minnie, Alice (medium), and Fanny (ditto). *Heavy Rose Picotees*: Lady Louisa, Miss Horner, Edith Dombain, Mrs. Payne, Royal Visit, and Mrs. Lord. *Light Rose and Scarlet Picotees*: Mrs. Allcroft, Julia, Daisy, Mrs. Adams, Ethel, Mrs. Nicholls, and Miss Wood (medium).

Disposal of Sewage (N.).—We have seen the plan you suggest of removing the manure adopted with the best results, and as it appears well adapted to your circumstances we advise you to carry it out. House slops of all kinds, including soap-suds, should be utilised in the garden. Probably in your small establishment one tank, in a convenient place and not obtrusive, into which the liquid can be conducted through pipes, would suffice. You would not have sufficient to be of practical use for distributing through a series of pipes and taps at different points. We should have a tank near the place where you keep manure and store garden refuse, then when the liquid was not required by growing crops it could be poured periodically over heaps of soil or decaying vegetable matter of any kind, and you would thus have a valuable compost heap for spreading on the land and digging-in as required. Soil, weeds, roadside trimming, or refuse of any kind saturated in the manner indicated would be rendered of great manurial value by the practice indicated. A good water barrel on wheels, into which the liquid could be poured and removed daily or when needed, would be sufficient in a very small household without laying down pipes. The contents of the manure barrows mixed with earth freely can be spread on vacant land and dug-in when convenient.

The Virginian and Chilean Strawberries (J. E.).—The following descriptions of these two species are given in Don's "Dichlamydeous Plants," and represent their most important characters:—*Fragaria virginiana*: Flowers late, dioecious from abortion, rather campanulate; petals ovate; leaflets coriaceous, not plicate; petioles short; peduncles and pedicels the length of the leaves; receptacle very tumid, pendulous; styles very long. Flowers white. Fruit deep red when ripe. A native of Virginia. This is the parent of what are termed the scarlet and so-called black Strawberries, of which the following were some of the early varieties:—Cockscumb, Grove-end Scarlet, Knight's Scarlet, Sir Joseph Banks' Scarlet, Wilmot's Scarlet, and Elton. *Fragaria chilensis* is thus described:—Flowers always dioecious from abortion, leaflets obovate, obtuse, coarsely serrated, coriaceous, wrinkled, clothed with silky hairs beneath; calyx and peduncles silky; peduncles thick; fruit pendulous; sepals erect. Fruit rose-coloured, flesh white. Native of South America, in Chili and Peru. This, with *F. grandiflora*, were the principal progenitors of the Pine Strawberries. Some of the early varieties were Black and Scarlet Chili, Patagonian, Wilmot's Superb, and Canterbury. The races have now become so intercrossed that it is difficult to give the origin of some varieties now in general use. The variety you name can be obtained from Messrs. Ellwanger & Barry, Mount Hope Nurseries, Rochester, New York.

Bougainvilleas spectabilis and glabra (J. M.).—The plant you have appears to be *Bougainvillea spectabilis*, as near as we can judge from the crushed leaves we received. This species differs chiefly from the more generally grown *B. glabra* in the larger deeper-coloured flowers and in the leaves being also larger and slightly hairy, whereas those of the other are quite smooth. Both are essentially stove plants, though *B. glabra* will thrive in a cooler temperature; but that is a much more freely flowering form than *B. spectabilis*, which, even when in good condition and well attended, is often several years before it produces flowers. *B. glabra* is by far the best suited for culture in pots, as handsome little specimens can be soon obtained, and plants may occasionally be seen in Covent Garden Market growing in 48 and 32-size pots, yet bearing abundance of bright rosy flowers. Encourage your plant to make vigorous growth in a light warm position, gradually lessening the supply of water as the wood becomes matured; give the plant a good rest, prune closely early in spring, and start it in heat if possible. However, you would find *B. glabra* of much more service.

Keeping Black Hamburgh Grapes (M. M.).—The Grapes being now ripe it will be necessary, in order to retain them in good condition as long as possible, to keep them cool, allowing a free circulation of air night and day, and when the sun is very powerful it will be necessary to shade for a few hours in the hottest part of the day. Sprinkling the floors in the early part of hot days will also be beneficial. Sufficient water must be afforded the border, especially that inside, to maintain the foliage in good condition. The shading will only be necessary during hot days in August and early September. Keep the laterals closely stopped to one joint, and examine the bunches occasionally for decayed berries, which must be removed promptly. Fire heat will not be necessary for the next six weeks, unless the weather prove very wet and dull, when a little by day will be beneficial so as to admit of a change of air, not raising the temperature by that means above 60° in the daytime, and turn off the heat early, so as to have the pipes cool before night. After September an equable temperature

of 45° to 50° should be secured as far as practicable, and the Grapes will keep till November, probably later if they have been well finished.

History of the Hop (R. N.).—The Hop (*Humulus Lupulus*) is found in many parts of temperate Europe, Asia, and North America, and is included in the British native flora. It is a relative of the Nettles and Hemp. It was known to the Romans under the name of *Lupus salictarius*, under which it is referred to by Pliny, the title, it is said, having been applied to it owing to the tenacity with which it clung to Willows. The plant was first generally cultivated in Flanders and Holland, whence the culture and use of the flower heads for beer were introduced to England about 1524. It was not, however, largely grown for a considerable time, the chief part of the supply being derived from Flanders. Tusser, in 1562, mentions the plant and gives directions for its culture, and in Lyte's translation of Dodon's Herbal (1578) an illustration and full description are given, with the accompanying observation as to its use. "The brewers of Ale and Bier do heape and gather the belles or knoppes together to giue a good relish and pleasant tast vnto their drinke." Gerard and other later writers also fully describe it. Since then the cultivation of the Hop in England has greatly extended, and at the present time many thousands of acres are devoted to it. Kent, Sussex, and Hampshire are the principal sources of the supply. The generic name, *Humulus*, is considered to be derived from *humus*, the ground, or *humilis*, humble, in allusion to its habit of growth when unsupported. The specific designation appears to be a diminutive of the old Latin name. You will find descriptions in any work on the British Flora.

A Floral Dial (Rosa).—There is much uncertainty attending all lists of the kinds you mention, as the weather exercises a great influence upon the opening and closing of flowers. The following floral clock or dial of British flowers is a good example of such arrangements. The times given indicate the periods at which the flowers either open or close:—*Tragopogon pratensis* opens at 3 A.M., closes at 12 P.M.; *Cichorium Intybus* opens at 4 A.M., closes at 4 P.M.; *Lapsana communis* opens at 5 A.M.; *Ranunculus hibernicus* opens at 6 A.M.; *Nymphaea alba* opens at 7 A.M., closes at 5 P.M.; *Anagallis arvensis* and *Dianthus prolifera* 8 A.M., the latter opening at 1 P.M. and the former at 2 P.M.; *Ranunculus Ficaria* opens at 9 A.M.; *Lapsana communis* closes at 10 A.M.; *Ornithogalum umbellatum* opens at 11 A.M.; *Leontodon hispidum* closes at 3 P.M.; *Silene nutans* opens at 6 P.M., and *Oenothera biennis* opens at 7 P.M. The *Bignonia* will succeed in a greenhouse in your position. The original floral clock composed by Linnaeus consisted of the following plants, which it may be remarked do not in England correspond to the times stated so faithfully as they probably did at Upsal. The periods named are those at which the flowers expanded:—*Ipomoea Nil*, 3 to 4 A.M.; *Tragopogon pratensis*, 4 to 5 A.M.; *Papaver nudicaule*, 5 A.M.; *Hypochaeris maculata*, 6 A.M.; several species of *Sonchus* and *Hieracium*, 6 to 7 A.M.; *Lactuca sativa*, 7 A.M.; *Specularia perfoliata* and *Calendula phlivalis*, 7 to 8 A.M.; *Anagallis arvensis*, 8 A.M.; *Nolana prostrata*, 8 to 9 A.M.; *Calendula arvensis*, 9 A.M.; *Arcnaria rubra*, 9 to 10 A.M.; *Mesembryanthemum nodiflorum*, 10 to 11 A.M.; *Ornithogalum umbellatum*, 11 A.M.; several Picoideous plants, 12 A.M.; *Scilla pomeridiana*, 2 P.M.; *Silene noctiflora*, 5 to 6 P.M.; *Oenothera biennis*, 6 P.M.; *Mirabilis Jalapa*, 6 to 7 P.M.; and *Cerens grandiflorus*, 7 to 8 P.M.

Manure for Strawberries and Cherries (D. D. H.).—Soil that is well drained and enriched with manure from a farmyard, pigsty, cowshed, or stable answers fairly well for Strawberries if it be shallow or deep. The plants, however, soon become exhausted in shallow soil under ordinary conditions of culture, and are only to be retained in full vigour by heavy annual dressings of manure dug in between the rows as soon as the fruiting season is at an end, and by copious waterings of sewage or other liquid manure during the season of growth. In many gardens the available supply of solid manure is so limited that none can be spared for the Strawberry bed; sewage of which every householder has a regular daily supply then becomes our substitute, the soil between the rows being broken up when the fruit is done, just as it would be if we had manure to dig in, and then the sewage is poured over it frequently till growth ceases in autumn. If planted carefully Cherries answer in soil of ordinary fertility, such as will produce good vegetables without any subsequent addition of manure; sewage, however, may always be given with advantage before the blossom expands and while the fruit is swelling. In poor thin soils stations must be made for the trees, each station being 6 feet square and 2 feet 6 inches deep. Lay a drain of common 2-inch land drain pipes across the middle of the bottom of the hole, and connect it with the nearest branch or main drain to render the roots safe from any accumulation of stagnant water, then cover the bottom of the station with 6 inches of broken bricks, stones, or clinkers—9 inches would not be too much in a wet low situation—and then fill the hole with sweet rich loam, in which plant the tree. If when the hole is made you find a substratum of gravel there will then be no occasion to use either broken stones or drain pipes, as all superfluous water is certain to pass away quickly. Careful planting involves close attention to details, and that is why we allude to them here. But Cherry trees are apt to flourish for a few years and then become barren, sickly, and not unfrequently die outright; they must, therefore, be watched closely, and prompt attention be given to the slightest indication of debility, which undoubtedly arises most frequently from exhaustion. The station once abounding with fertility has become sterile, the roots having ramified in it till it has become permeated with them in every direction and lost all its goodness. The remedy is obvious. Make a trench 2 or 3 feet wide and 2 feet deep around the station, fill it with soil similar to that used for the station, and feed the roots with sewage until they have entered the new soil.

Cherries Shedding Fruit (Idem).—The falling of the immature fruit of Cherries has been very prevalent this year; so, too, has that of Apples and Pears, all which is doubtless owing to the drought, just as in some seasons it is attributable to unripe wood, and in others to damaged blossom by late frosts. Your idea that the loss of the Cherries proceeds from a deficiency of lime in the soil could only be entertained if you had stated that it had invariably been the case during a period of consecutive years. No doubt the want of lime and potash in soil not unfrequently is the cause of a paucity of fruit, and if it be so in your soil a prompt and efficient remedy may be had by a plentiful dressing of wood ashes and lime.

Liquid Manure for Dahlias (S. H.).—We do not advise you to merely "sprinkle" the solution of sulphate of ammonia on the ground, but to pour it on copiously, at a strength of not more than half an ounce to a gallon of water, as often as is required to keep the soil moist, not on the surface merely but below where the roots are working. A gallon a day to each plant will not be too much in dry weather if the plants are of large size and in free growth. Sow the seed of your plants as soon as it is ripe. Layer the Carnations immediately the growths are long enough, whether the plants are flowering or not. Erpotion reniforme is by no means common and well deserves attention. It is known popularly as the New Holland Violet, and is related to the Violas. It is usually propagated by cuttings or dividing the plants, and we have no experience of the length of time the seeds are germinating, though probably it would scarcely

exceed a few weeks. The plant is rather delicate, and requires protection in cold and northerly districts. We regret to hear of your indisposition, and can wait patiently for the plant you have kindly promised to send us.

The Joanneting Apple (*R. Esser*).—The Apple respecting which you inquire is the above, which is also known under the names Ginetting, Juneting, Early Jenning, White Juneating, Juneating, and several others. The following description of it is given in the "Fruit Manual":—"Fruit small, round, and a little flattened. Skin smooth and shining, pale yellowish green in the shade, but clear yellow, with sometimes a faint tinge of red or orange, next the sun. Eye small and closed, surrounded with a few small plaits, and set in a very shallow basin. Stalk an inch long, slender, and inserted in a shallow cavity, which is lined with delicate russet. Flesh white, crisp, brisk, and juicy, with a vinous and slightly perfumed flavour, but becoming mealy and tasteless if kept only a few days after being gathered. This is the earliest Apple of the year; it is in greatest perfection when gathered off the tree, or immediately afterwards, as it very soon becomes dry and mealy. The tree does not attain a large size, but is hardy and healthy. It is not a great bearer, which may in a great measure account for it not being so generally cultivated as its earliness would recommend it to be. If worked on the Paradise stock it may be grown in pots, when the fruit will not only be produced earlier but in greater abundance than on the Crab or free stock." Respecting the derivation of the name the same work states:—"Apples were called Joannina because they ripened about St. John's Day, and we have among the old French Pears Amire Joannet, the 'Wonderful Little John,' which Merlet informs us was so called because it ripened about St. John's Day. If, then, we add to Joannet the termination *ing*, so general among our names of Apples, we have Joanneting. There can be no doubt that this is the correct derivation of the name of this Apple."

Select White, Yellow, and Dark Roses for Standards (*J. S.*).—Three white varieties are Boule de Neige, Baronne de Maynard, and Mrs. Bosanquet (China). Instead of the two latter, unless you are particular in having white, we should have Baronne de Rothschild and La France. Three good yellow Roses are Celine Forestier, Belle Lyonnaise, and Perle des Jardins, though we do not recommend them for outdoors as standards, as they are tender and liable to be killed by a severe winter even when protected. Gloire de Dijon is more reliable—indeed, the only one that survived the last severe winter with us. Three dark varieties are Charles Lefebvre, Louis Van Houtte, and Prince Camille de Rohan.

Bouvardia Culture (*Idem*).—Some of the best forms are—The Bride Vreelandi, umbellata alba, and Humboldtii corymbiflora, all white; rosea oculata, umbellata carnea, intermedia, and longiflora flammea, all bluish, rose or pink; triphylla, leiantha. Brilliant, elegans, all scarlet; and flava, yellow. The plants are best grown from cuttings of half-ripened growths in spring, which strike readily in gentle bottom heat. Pot them singly when rooted, and grow near the glass in a temperature of 60° to 65° artificially, and 75° or more from sun heat. Stop them when 6 inches high, and again when a few inches of fresh growth is made. Plant out when strong in a pit where there is a bed of turfy loam, and where there is means of maintaining the temperature above named. The plants may be planted 15 to 18 inches distance. Have them duly supplied with water, and ventilate freely in favourable weather, withdrawing the lights by the middle of July, and let the plants be exposed until about the middle of September; then lift them, placing them in 7 or 8-inch pots in good loam, keeping them rather close, and sprinkled until established. To flower through the winter a temperature of 55° to 65° artificially, and 70° to 75° from sun heat, is necessary.

Names of Plants (*A Reader*).—1, *Silene perfoliata*; 2, *Viburnum dentatum*; 3, *Juniperus oblonga*. (*Miss Bayley*).—*Spiraea Filipendula*. (*H. H. T.*).—*Philadelphus coronarius*, the Mock Orange. (*J. M.*).—The two or three leaves sent were not recognisable. (*J. R.*).—The purple flower is *Hardenbergia Compertiana*; the white one is *Phyteuma spicatum*.

Preventing Swarming by Supering—Marking Bees (*H. M. Southport*).—Supering will not always prevent swarming, but if be done skilfully it is generally successful. The confinement of the queen prevents swarms issuing, but it is a question whether the risk and disturbance to the whole colony does not far outweigh the advantage. If queen cells are already started before the super is put on failure will be the rule. The queen cells should be removed and the brood nest arranged so as to give the queen room for ovipositing. Whether bees gather from the flowers in your garden will depend upon the general condition of the honey yield. Less than a week since honeycomb could be left about in the apiary without receiving any attention, to-day a single spilt drop of honey produces a scramble more noisy than pleasant. You can easily mark your bees. Sir John Lubbock made lasting acquaintance with single ones by giving them dabs of paint of different colours on the thorax. Your plan will be more simple. A little flour in a dredger shaken over the departing bees on the alighting board will immediately determine whether they are in any number visiting the Borage, &c., you have provided.

Finishing Sections (*Buzz*).—See article on page 91, which furnishes a reply to your inquiry.

COVENT GARDEN MARKET.—JULY 27.

LARGE quantities of soft fruit have reached us during the week, making good prices, but are now showing signs of a finish. Peaches and Nectarines are still in demand and realising their full value. Trade falling off.

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.		
Artichokes.....	dozen	2	0 to 4	0	Mushrooms.....	punnet	1 0 to 1 6		
Asparagus.....	bundle	0	0	0	Mustard & Cress..	punnet	0 2	0 3	
Beans, Kidney....	½ lb.	0	3	0	Onions.....	bushel	3 6	5 0	
Beet, Red.....	dozen	1	0	2	pickling.....	quart	0	0	0
Broccoli.....	bundle	0	9	1	Parsley.....	doz. bunches	3	0	4
Brussels Sprouts..	½ sieve	0	0	0	Parsnips.....	dozen	1	0	2
Cabbage.....	dozen	0	6	1	Peas.....	quart	0	9	1
Carrots.....	bunch	0	4	0	Potatoes.....	bushel	3	9	4
Capsicums.....	½ 100	1	6	2	Kidney.....	bushel	4	0	4
Cauliflowers.....	dozen	0	0	3	Radishes.....	doz. bunches	1	6	2
Celery.....	bundle	1	6	2	Rhubarb.....	bundle	0	4	0
Coleworts.....	doz. bunches	2	0	4	Salsafy.....	bundle	1	0	0
Cucumbers.....	each	0	4	0	Scorzonera.....	bundle	1	6	0
Endive.....	dozen	1	0	2	Seakale.....	basket	0	0	0
Fennel.....	bunch	0	3	0	Shallots.....	½ lb.	0	3	0
Garlic.....	½ lb.	0	6	0	Spinach.....	bushel	3	0	0
Herbs.....	bunch	0	2	0	Turnips.....	bunch	0	4	0
Leeks.....	bunch	0	3	0	Vegetable Marrows	each	0	3	0

FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples.....	½ sieve	2	3 to 2	Lemons.....	½ case	12	0 to 18
Apricots.....	box	1	6	Melons.....	each	2	6
Cherries.....	½ lb.	0	3	Nectarines.....	dozen	4	0
Chestnuts.....	bushel	0	0	Oranges.....	½ 100	4	0
Currants, Black .	½ sieve	6	0	Peaches.....	dozen	4	0
" Red....	½ sieve	3	6	Pears, kitchen ..	dozen	0	0
Figs.....	dozen	3	0	" dessert.....	dozen	0	0
Filberts.....	½ lb.	0	0	Pine Apples....	½ lb.	3	0
Cobs.....	½ lb.	0	0	Strawberries....	per lb.	0	4
Gooseberries....	½ sieve	2	6	Walnuts.....	bushel	0	0
Grapes.....	½ lb	1	6	ditto.....	½ 100	0	0



POULTRY AND PIGEON CHRONICLE.

THE FIELD CULTIVATION OF STRAWBERRIES.

THIS is a subject to which the home farmer will be required to give more attention in the future than he has done in the past, for upon various estates there is more land in hand than we have ever known before. As ordinary farming has been less profitable during the past few years than it had been previously, it is of great consequence to consider how far Strawberry cultivation can be introduced on the home farm to assist in maintaining the advantages which ought to be derived from the occupation. Upon numerous estates the farm manager is probably comparatively unacquainted with the best mode of growing this fruit; he may, however, be greatly assisted by the head gardener. In proof of this the readers of this Journal may refer to the clever and practical treatment of the subject of "Strawberry Farming" by Mr. William Raitt of Blairgowrie, given on the 30th of December, 1880, and continued until the 10th of February of this year, and which we have perused with much interest.

We take up the culture of Strawberries because we have witnessed the extraordinary benefit to be derived from their cultivation upon land formerly waste. This tract of land, to the extent of 1200 acres, is now in great part converted into some of the finest fruit gardens in the kingdom, but more especially by its production of Strawberries. Some of this land is let to more than twenty different tenants, and we have long observed the practical management adopted by these occupiers. There are several acres of such land still remaining as worthless common. The home farmer is much more at liberty in adopting any new mode of cultivation than ordinary tenants, who are often impeded in their farming operations by restrictive covenants in their leases, for he has only to prove by well-conducted experiments that his cultivation of any crop is profitable, and it will meet with the approval of his employer.

In estimating our position as to the policy of cultivating Strawberries many points will arise, all being of more or less importance. Soil, situation, and aspect, however, are the three leading points to be considered; still it must be remembered that we have numerous kinds of Strawberries obtainable for growth, and adapted for our purpose. The land may vary in many respects, yet we find that the sorts of fruit and their habit of growth are quite as numerous as the variations of the soil. We have recently heard the observation that the production of Strawberries will soon be overdone, and they will not be worth cultivation. But can we produce them in such abundance as to become unprofitable? We cannot conceive such a state of things, for we can surely grow Strawberries as cheaply as those which are imported, the only point against us being that they are imported a little before ours are ripe, owing in a great measure to the late and cold springs unfortunately peculiar to our climate. At all other times we

have the advantage that the fruit with which we supply the market is in better condition, and the further advantage of being able to grow the heaviest crops possible of the second early and late sorts. If the produce of these was doubled immediately it would scarcely affect the price, for we find that the slightest diminution in price is immediately followed by an extraordinary increase of consumption, and one of the most hopeful prospects for the grower (especially if the later varieties are grown) is the great and increasing demand by the wholesale jam-makers for fruit suitable for preserving purposes. Under these circumstances there is great encouragement for the home farmer to introduce into his business the growth of this fruit.

Many of the strong soils prove suitable for Strawberries, and if to make a general observation we must say that a strong gravelly soil of a yellow or partially red colour of the subsoil intermixed with clay is about the best land for the production of the second early and late varieties. On the other hand, for early fruit-production the sands with a blue pebble in them are well suited, for such soils generally produce good elm timber, and these trees afford excellent shelter for early fruit growing. We may find some of these sandy soils too light, requiring (to give them a staple sufficient to produce the finest fruit) a moderate application of gravelly clay occasionally, or chalk marl, containing about 20 or 30 per cent. of carbonate of lime. These sands, too, are very subject to weeds, and should have a moderate dressing of either chalk or lime. Various strong clays when properly drained we have noticed bear excellent samples of this fruit, especially those clays containing a large portion of potash; but this cannot be ascertained except by analysis, for we have grown splendid fruit upon the rank and tenacious yellow clay. We have seen parts of three fields of strong yellow clay, upon which for a period of sixty years abundant crops of many kinds were grown without the application of any manure. Upon analysis this soil was found extremely rich in potash, whilst the adjoining land, bearing similar appearance, scarcely yielded a trace of potash. This fact ought to induce the home farmer to understand the nature of the land, but more particularly of the subsoil, before he begins to cultivate Strawberries. As a general rule any land may be made suitable for this fruit if the climate and situation of the land are favourable. We would not recommend its growth upon exposed and hilly land where the rainfall is excessive, nor upon any land (however suitable in other respects) if situated in valleys below the level of night fogs, for in our climate we often get night frosts destructive to fruit very late in the spring. Where the land is well situated we have by draining made excellent Strawberry gardens upon what consisted previously of peat bogs and quicksands, thus proving if the situation is favourable almost any soil may answer for the production of this fruit.

Turning to the mode of culture in the field we ask the home farmer to give up all idea of spade or fork culture, and rely chiefly upon the plough, the subsoil plough, the double-breasted plough, the horse hoe, and the hand hoe alone. To illustrate this we will take a piece of level land of any of the soils we have named in the fallow state, and as soon as it is clean and free from Couch and weeds let it be ploughed about 8 or 10 inches deep, the subsoil plough following breaking up the subsoil about the same depth, and repeat the work by carrying it out crossways. This will render the subsoil accessible to the roots of the plants, and is the most important point in the cultivation, for it often happens that the best soil for the purpose is that situated just below the depth of ordinary ploughing. As a rule the fallowing may be done best in the spring and summer, but the subsoiling in the months of September or October if done by horse labour. In preference to horse labour, either in making the fallow or subsoiling and deepening the tillage, there is nothing like steam power, more particularly upon hard conglomerate gravels, or soils containing boulder stones. Again, if time is an object, so that the field is required for planting at a given time, that object can always be best obtained by the use of steam power.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are engaged in the late districts in cutting the meadow grass and carting the hay to the stack. In the eastern, south-eastern, and home counties cutting Rye and winter Barley and carting to stack will be going on. At all possible intervals the completion of Turnip-sowing should receive attention, it having been so far delayed by the dry and hot season that in various instances the young Swede plants as well as Turnips have been destroyed by the fly. Sowing a second time, and consequently extra tillage, will be required, employing the horses until the harvest is ready. After that so many fields of Turnips having failed, increased exertions will be made to obtain Turnips after Rye, winter Barley, Peas, Vetches for seed. We can only advise that this should be

done, for there is more probability of obtaining a plant after a good rain than during the late hot and dry weather. Care should be taken to keep the land as fast as ploughed worked down and the seed drilled with manure every evening whilst the land is moist and fine. As we have often stated in these columns, this can easily be done by setting up the corn on one-third of the land as fast as it is cut, leaving the remaining third of the land to be seeded after the crop has been cleared off. The Wheat in the early districts is being cut and tied by the self-binding reaper. This is hard work for the horses, and in order to make long and effective day's work the horses should be changed every four hours during the day's work. Under any circumstances, but more particularly where the crop is heavy, the horse labour is severe for them—much more so than their labour in tillage, to which work they are chiefly accustomed. We must again call attention to the early cutting of Wheat, for when the moisture cannot be pressed out of the grain it is then fit for reaping, and will certainly take more or less injury by standing in the field. There is no doubt that although the sun is necessary in the ripening of the corn it will greatly injure it if, after being ripe, it is too long exposed to its influence. Quite irrespective of receiving injury in that way, there can be no doubt that corn cut early will receive far less damage if wet and adverse weather succeeds; in fact, there is practically every reason why corn should be cut at the earliest period, and nothing in favour of delay. In order, however, to avoid delay the harvest must be anticipated by hiring a sufficient staff of workmen to assist in securing the corn as fast as possible as it becomes fit for stacking. We have no doubt, in a season like what we have lately experienced, it will be advisable to some extent to thrash the corn in the field and stack the straw, instead of the usual mode of making the ricks of corn as fast as ready in the field. In this plan much labour is saved, as well as risk of damage, and in these days of low-priced corn and high-priced labour in the interest of the home farm this matter must be duly considered, and every possible saving made consistent with the condition of the grain; but the extra labourers required must be engaged by anticipation, otherwise it will not answer to undertake any extra labour.

Hand Labour.—Men are trimming and thatching the haystacks, hoeing the Mangold the last time, and Swedes and Turnips as the plants become large enough for hoeing, as so many have been seeded the second time. Much general work is now going on preparatory to the commencement of harvest.

Live Stock.—The stock flocks on the hills are very short of food, and likely to be for some time to come. The crops of Rape are drying up, instead of supplying us with luxuriant food as in ordinary seasons. In many instances there is but little grass or promise for it at present on meadows or parklands cut for hay; and where the grass has been fed by stock there is little succession of grass, both sheep and cattle in some cases being very short of water, and where that is the case they suffer far more than from a short supply of food. Linseed cake is now the best supplement for short keep, as it never makes the animals thirsty like bean or barley meal. The fairs are now being held, and auctions also, for the sale of rams and breeding ewes both of the long-wooled and the short-wooled breeds. As we fear that the hardihood and constitution of the rams have suffered in no slight degree from the practice now so general of forcing them to an unnatural size at an early age, we must caution the home farmer against buying or rearing his rams in such a helpless condition. Under any circumstances we find it a good plan to shear the ram lambs now, the sooner the better. At the fairs now taking place a large proportion of the stock ewes are in low condition; and as this is another extreme how can we expect but that disease will be engendered in the offspring where the blood of the parents is in an unhealthy state from what we may call under-feeding of the ewes and that of the rams from over-feeding. In all cases where rams are required to be mated with ewes for producing early fat lambs at Easter it is of great consequence to select rams with close short wool for service with the different tribes of down ewes, and also to select rams of the horned Somerset or Dorset breed for service with the Leicesters and other long-wooled ewes. This is especially seen to be of great advantage in the case of twin lambs, because, these requiring a longer time in feeding, their coats are apt to become hollow and loose. These never attract the attention of the butchers, hence the care required in the mating of the stock for breeding lambs for the early London and provincial markets. We must again call attention to our plan of folding sheep in the day instead of at night, in order that the manure and droppings may fall where it is beneficial to the land, for we daily notice large flocks of sheep collected together under trees, where their manure is all wasted.

VARIETIES.

THE BRITISH BEE-KEEPERS' ASSOCIATION.—The annual Exhibition of this Society was commenced on Tuesday last at South Kensington, and will continue until next Monday, August 1st. The exhibits are on this occasion staged in the arcade near the Council-room, and not in the corridors, as last year, as these are now occupied with the Medical and Sanitary Exhibition. The entries in the chief classes are numerous, and some honey of excellent quality is shown, hives and other apiarian requisites being well represented.

The following is the programme of arrangements for the four remaining days:—Thursday, July 28th: Show opens at 10 A.M.; displays and lectures in the bee tent at intervals throughout the afternoon; 3.30 P.M., distribution of prizes by H.R.H. the Princess Christian. All the above meetings will take place in the Committee-room adjoining the Show. Friday and Saturday, July 29th and 30th: Show opens at 10 A.M.; no displays or lectures will be given in the bee tent on these days. Monday, August 1st: Show opens at 10 A.M.; displays and lectures in the bee tent throughout the afternoon. Admission 3d. Members attending the Show will be required to bring their tickets of membership. A report of this Show, and of Mr. Cheshire's lecture on "Bees as Florists, Hybridisers, and Fruit-Producers," will be given in our next issue.

— **DISEASED FOWLS FOR THE TABLE D'HÔTE.**—A daily contemporary observes—"All persons who are planning a tour in Switzerland will do well to make a note of the fact that the Swiss journals, for some three weeks past, have been much occupied with correspondence about a disease in the fowls which is causing no small anxiety to the hotel-keepers. It goes by the name of the 'Hühner-Cholera,' or simply 'Hühnerpest.' The demand for fowls for the *table d'hôte* is enormous during the season, and far larger than Switzerland itself can supply. Nearly all the great hotels purchase their fowls from Italy or France, and it appears that the disease occurs most frequently in the imported birds, has rarely been detected in the natives, and has almost certainly being communicated to these latter during their short companionship with their foreign kinsfolk. No one who has caught sight of a number of these wretched creatures during their transport over the Alps, say across the St. Gothard Pass, can be astonished at their sickness. They pass in the course of a few hours from a tropical into an arctic climate, and then descend again from the snow into the fiercest heat. Such changes are trying enough to the human pedestrian, who enjoys freedom of motion, which supplies some corrective. But these miserable birds, often poor scraggy creatures at starting, are packed together in basket-cages almost as closely as sardines. The sight of their heads craned piteously out of the holes in their prison, screeching for liberty, must have touched the heart of many a member of the Society for the Prevention of Cruelty to Animals."

— **A GOOD HARVEST.**—The *Daily News* thus graphically describes the advantages of a good harvest, and the description is not overdrawn. "Every village and country town in the kingdom feels the effect of a good harvest. Everything is livelier and busier. There is more money going among all classes. The railways have more traffic and more travellers; the shopkeepers see more customers, and the labourers are more fully employed. There are fresh orders for the commercial traveller when he comes round, and great business houses in London, Manchester, Leeds, or Birmingham report a lively demand for their goods. The movement, like the ripple made by Pope's pebble in the peaceful lake, spreads in widening circles all round. From the tradesmen in the towns and villages it spreads to the wholesale houses, thence to the manufacturers, and so on to the workman, to the producer of raw material, and back to the farmer again. A flourishing agriculture makes a flourishing home trade, and a brisk home trade quickens the demand for agricultural products in the towns, and prices are forced up by the increased consumption. The food which would have had to be purchased has been grown at home, and the nation is the richer by the whole of the difference between the value of the cereal produce last year and that of the harvest now about to begin."

POULTRY AND PIGEONS

FANCIERS v. FARMERS.

IT is impossible for a Dorking fancier not to be interested in or amused at the letter of Mr. Harrison Weir, which under the above heading appeared in your columns of the 7th inst. Before now I have done the little in my power directly to call the attention of poultry fanciers to what I believe to be the true type of Dorking, and indirectly to influence judges to give prizes to birds

of that type. It may be said that the question in the Dorking controversy is what that type is. This I cannot allow. I have never met with any fancier breeder who really had much doubt about it. The difference has been as to what defects should be considered disadvantages and what absolute disqualifications. Other fellow fanciers and breeders have taken the same course; and we have, I think, been always anxious (for my own part I certainly have) to get the opinion of the older Dorking fanciers such as Mr. Weir. I am, therefore, a little astonished and indignant to read his comparison between fanciers and farmers to the obvious disadvantage of the former. We fanciers have been the cause of the decline, aye, and the loss of a valuable breed of poultry, which we ignorantly thought we were all the while encouraging! I venture, therefore, to trespass once more upon your space, and to examine some of Mr. Weir's statements and the arguments he draws from them, which, however, might not, I think, lead everybody to the same conclusions. "I know," he says, "from long observation of the different stocks of poultry of farmers in Surrey, Sussex, and Kent, that the utmost care was taken to keep and preserve the breed pure;" and a little further on, "At Lewes, only last week, a farmer's wife asked me where to get some true-bred Dorkings, as she did not like the new style of bird at all for the farmyard. I could only answer, 'I wish I knew.'" But why, in the name of common sense, if these farmers took so much pains to keep this breed pure, have they so utterly failed that it cannot now be obtained even by one having such exceptional acquaintance with the poultry-growing districts as Mr. Weir? Why, if it was so pre-eminently excellent for the table, has it been allowed to die out by the caterers for the London markets? What occult power has been given to the "fanciers" that have been able to drive out from all the farms of Surrey, Sussex, and Kent a useful and palatable breed of poultry, and to introduce instead a coarse-fleshed and mongrel race? I believe the answer to be a very simple one and twofold. First, that the old Dorking was a delicate bird, and so when not really eared for by enthusiastic fanciers, died out. Second, that the farmers who admired it were too careless or too stupid to see this, and so let it die out without making any intelligent attempt to improve its constitution, while retaining its admittedly excellent qualities as a table fowl.

"Why," says Mr. Weir, "is the true white-legged Dorking to be stamped out?" Why, indeed! But who wishes to stamp it out? and who, if he wished, could do so when, according to Mr. Weir, it no longer exists? But to leave behind the peculiar inferences which Mr. Weir draws from his own facts, I do not believe that there really is much difference of opinion between him and ourselves, the present fanciers and breeders of Dorkings, as to what a true Dorking should be. Some time ago, unfortunately, mongrels did often appear in the prize list, and I heartily re-echo your correspondent's words—"If the prizes are for Dorkings why are they given to cross-breeds?" This was the question in the mouths of all of us some four or five years ago. It was not we who showed the mongrels. Two or three exhibitors did, and the judges persisted in giving them the prizes. That was not our fault; we grumbled and exclaimed against such decisions, and finally stopped them. The judges, too, who made such awards were no young and inexperienced fanciers. The late Mr. E. Hewitt, all round a most excellent judge, for a time made the great mistake of selecting for honours long-legged coarse-boned Dorkings. Again at Birmingham Mr. Baily one year gave second prize to a cockerel in the White Dorking class which was avowedly a first cross with a Light Brahma; he had a pea comb and feathers on his legs. We fanciers suffered grievously at the time from such blunders. But why blame us when we did all in our power to counteract them, and have now made them almost impossible? Of course no fancier ever bought such birds at their catalogue price of £1 or £2; but we preferred giving our £10 or £20 to each other for unnoticed specimens.

I do not rush into the large question whether, apart from the enthusiasm of "fancy," any race is likely to be kept long pure or to be improved. Abler pens than mine have done justice to it; but I do protest, as a Dorking fancier, against the assertion that the present Dorking fanciers wish in any way to depart from the old recognised Dorking characteristics, though I believe most of us are glad that by careful selection we possess a really hardy race, which I well recollect my earliest Dorkings were not, and that in four months we can produce chickens of a size which formerly six months would hardly have given us. I do not desire to write with any asperity; there are plenty of subjects in life for controversy without quarrelling over our amusements. I firmly believe that Mr. Weir and others who agree with him are entirely under a misapprehension as to the points which present Dorking fanciers breed for, and unjustly credit them with the vagaries of some few overworked judges.

I believe a new "Standard of Excellence" is likely to be published by the Poultry Club. This, it is to be hoped, will clearly show what our ideal Dorking is.—O. E. CRESSWELL.

POULTRY NOTES.

TRULY history repeats itself. Twenty-seven years ago Mr. L. A. Meall, in writing his new edition of "Moubray on Poultry," discussed the Dorking question, and contended that the White Dorking was the only genuine and original breed entitled to that name. He refused to allow that the coloured birds, which he called "the Sussex fowl or 'Improved' Dorking," were anything more than the result of crosses. The following extract is instructive:—"Not that we wish to speak in any way disparagingly of the merits of the Sussex as a fowl, for we readily admit that cross-bred birds often surpass their original progenitors; but all we contend for is, that as a breed or variety they ought not to be permitted to be elated or to enter into competition with that of the true-bred White Dorking." To-day we have Mr. Harrison Weir adducing a similar charge against the modern Coloured Dorking, with the difference, however, that it is not for the White Dorking alone that he claims title to purity of blood, but also for the very birds which Mr. Meall denounced nearly thirty years since as being mere pretenders to the name.

IN his first letter Mr. Weir disclaimed having said all that we attributed to "the praisers of the time that is past" in reference to the demerits of the modern Dorking. We never alleged that he had, but we think we may now safely leave it to our readers to judge whether our statement as to the general condemnation of the modern Dorking by the admirers of the Dorking of the past was an exaggeration. With the single exception that Mr. Weir does not allege that the modern Dorking has "black feet" (an expression which we of course did not intend to be taken literally), and substitutes the term "sooty-legged" as conveying his ideas in this respect, we really cannot see that his estimate of the modern Dorking differs very much from that attributed by us to the "praisers of the time that is past." We will not attempt to combat these doctrines, as there are apparently others able and willing to do so, and it has been discussed at some length recently.

MR. WEIR must have been grievously affected by the death of that last bird of his old strain, or he would surely not have run such a tilt as he has done against all modern poultry fanciers. Having said in his first letter that he "knows none of the fanciers," he in his second describes them as "little dealers who buy up a few well-bred birds, show them, and get prizes as long as those birds last, and advertise birds and eggs from such and such a prize strain;" and again as men "who kill the birds they ought to love by sending them from show to show until they die from sheer exhaustion through their owners' greed for gain." It is true that he denies the right of such men to be called fanciers, and defines a fancier as "one who keeps anything from the pure love of it, looking to and keeping and purifying its most minute points of stated excellence and beauty," but he also implies that no such enthusiasts in poultry exist. All we can say is that Mr. Weir evidently "does not know any of the fanciers," and that if he did he would find amongst their ranks many who are just as far removed from "little dealers" as the fanciers of flowers he refers to. There are, of course, dealers in poultry just as there are nurserymen who supply the wants of the fanciers of flowers, but that does not justify the condemnation of all modern fanciers, nor indeed such a sweeping condemnation of those who earn a living by exhibiting and dealing in fancy poultry. Many dealers are perfectly free from blame on the score of cruelty in over-exhibiting their birds, and surely dealing in poultry is not of itself a more vicious pursuit than dealing in anything else.

THE illustration drawn from the fanciers of flowers shows clearly the distinction we sought to draw between the fancier and the farmer, by which latter term we meant the man who keeps poultry for the supply of eggs and meat. Would anyone think of blaming the enthusiastic gazer upon the Auricula or the Tulip because he did not devote his attention to the Potato or the Onion? We contended, and still contend, that the fancier as fancier has no more to do with the edible qualities of his pets than the Tulip fancier has to do with the question whether or not his choicest bulbs would eat well if cooked. Indeed, we are surprised that Mr. Weir, who shows so fine an appreciation of the "loving tenderness" of the true fancier, should for a moment be led so far away

from the paths of the true fancier as to calmly contemplate the appearance of his favourites on the dinner table.

ONE word as to crosses. Mr. Weir asks, "Why is the fancier so anxious to breed poultry pure that the farmer may have them to cross with his common fowls?" We answer that the fancier has no such anxiety. He does not in the least regard what the farmer may do in the way of crossing. It does not in the least concern him; but as we write for farmers as well as fanciers, we advise the farmers to do what we have found most advantageous. If the farmer has a breed of poultry, be they ancient Dorkings or be they anything else, which gives him a liberal supply of good-sized eggs, is hardy, and makes a fine table fowl, let him keep to it by all means; but if this breed cannot be found—and we frankly confess that we do not know where to find it—then we advise as the next best course the use of a judicious cross. It is well known that however much the original good or useful qualities of a breed may have been lost by breeding for purely fancy points, these good qualities almost invariably re-appear upon an entirely fresh cross. It is further well known that although it is difficult to combine very superior laying and table qualities in the same breed, yet both these qualities may be found in cross-bred birds. We therefore recommend the farmer to make an effort at improvement in this direction. If the cross be judicious there may be some variety in "colour, comb, and topknot," which are purely fancy points, with which the farmer as such is not concerned; but there should not be any great variety in size or shape, nor yet in laying qualities, which are the matters of most importance to the farmer.

IN using the heading, "Fanciers *versus* Farmers" we did not mean to imply that there was or should be any hostility between the two classes. We do not for a moment doubt that many farmers have been and are good fanciers, but in so far as they have become fanciers of poultry we think it will be found that they have ceased to be farmers of them. In some breeds, and perhaps more in the Dorking than any other, the two aims are, to a certain extent, consistent with each other; but even here the struggle between utility and beauty must come sooner or later, and one has to give way to the other. To the fancier beauty is of primary importance, and utility must take a secondary position. To the farmer the useful qualities are all-important, and beauty is hardly worth consideration. We simply desired to emphasise this distinction, and we do not suppose that our title conveyed to any other of our readers than Mr. Weir the idea that we meant to imply the existence of any hostility between fanciers and farmers.

OUR LETTER BOX.

Boiled Indian Corn (J. J.).—Boiled Indian corn mixed with bran is good food for working horses if given at the same cost as two bushels of Oats and half bushel of Beans per week, and is especially adapted for feeding mares with foals.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barometer at 32° at Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1881.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
July.										
Sun. 17	30.099	71.8	64.5	W.	69.0	84.4	60.2	125.6	58.2	—
Mon. 18	29.997	75.0	63.8	N.W.	68.9	88.7	60.9	133.4	51.7	—
Tues. 19	29.891	76.3	65.6	N.W.	69.7	89.3	62.0	137.7	57.0	—
Wed. 20	29.857	58.8	56.3	N.W.	70.3	77.7	58.2	129.3	57.9	—
Thurs. 21	30.020	61.6	53.0	N.	68.5	75.9	49.4	121.9	43.3	0.010
Friday 22	29.980	59.0	53.9	E.	67.9	65.6	53.9	89.4	48.6	0.038
Satur. 23	29.939	65.1	59.4	W.	65.9	73.5	54.0	116.4	48.8	0.018
Means.	29.973	66.8	59.6		68.6	79.3	56.9	122.0	52.6	0.066

REMARKS.

17th.—Brilliantly fine and hot.
 18th.—Fine, bright, very warm.
 19th.—Misty early, afterwards fine, bright, and hot; latter part of the day cloudy and oppressive.
 20th.—Much cooler; overcast at first, afterwards bright and fine.
 21st.—Very fine, with cool breeze.
 22nd.—Overcast, cool, and slight showers.
 23rd.—Fair, but very dull and rainy-looking at times.
 The early part of the week nearly as hot as the previous one, but since the 19th it has been much cooler, though almost without rain. For the whole week the temperature, though much below last week, is considerably above the average.
 —G. J. SYMONS.



4th	TH	Sale of Orchids at Mr. Stevens's Rooms, Covent Garden.
5th	F	
6th	S	
7th	SUN	8TH SUNDAY AFTER TRINITY.
8th	M	Camberwell Amateur Floral Society's Show.
9th	TU	Royal Horticultural Society, Fruit and Floral Committees at
10th	W	[11 A.M.]

RASPBERRIES AND RATIONALISM.

RASPBERRY crops have been generally very good this year, but some of them might possibly have been better had a more intelligent system of management been pursued in one extremely simple yet highly important particular—namely, thinning out the growths at the proper time and in a proper manner. Raspberry canes are like young Vine rods; if the wood is not matured and the buds in the axils of the leaves are not bold, the best crops of fruit cannot be expected. These essentials of fruitfulness cannot be produced if the growths are overcrowded in summer. It is the custom to thin out the canes of Raspberries during the winter—removing those that have yielded fruit, and at the same time a number of the young growths, retaining the best for producing the future crop. This is all very well, indeed the practice cannot be dispensed with; but if Raspberries are well managed there is no necessity for doing such work in the winter, or very little of it will need to be done then. The proper time for thinning Raspberry canes is in early summer, say about May, and again in July or early August, immediately after the fruit has been gathered. There is time for the latter process now, and those who adopt it will find the benefit of having done so in the better crops of fruit that will be produced another year.

At the present moment there are hundreds of plantations of Raspberries where the growths form a dense thicket. Each stool consists probably in the majority of cases of about half a dozen fruiting canes, or canes that have just fruited, and from twelve to twenty young growths, a limited number of which will be secured to the stakes or wires, the others being cut out or pulled up after the leaves have fallen. Let anyone who has a bed of Raspberries in the condition described examine the canes now, and those that have fruited will be barren quite half their length from the ground, while the new canes will only have bold buds near the top where they have been under the influence of light and air, the lower and stronger portions of the growths having no prominent buds in the leaf axils. Now the mere strength of a Vine or Raspberry cane is of little or no use for fruiting if the axillary buds are not fully developed and the wood ripened. A Vine cane for instance, not thicker than a lady's finger will, if short-jointed, studded with bold buds, and matured, afford a far better crop of Grapes than a cane half as thick again as a man's thumb will produce, and that is green, soft, pithy, and destitute of round hard nut-like buds.

It is not possible that hard fruitful growths can be produced

by the summer-crowding or thicket system—air and light must have access to the foliage in summer. It is no use admitting them to the leafless stems in winter, as the nature of these cannot then be changed. The overcrowded plantations require relief now—at once. Every day's delay is dangerous. The first thinning really ought to have been done in the spring by pulling up the superfluous suckers when from 6 inches to a foot high, and those remaining, half a dozen or so from each root, would have been very different now—shorter-jointed, firmer, with bolder axillary buds almost to the base of the stems. If the young growths referred to are pulled up in wet weather in spring and planted at once they grow freely and form good canes by the autumn. Where this spring thinning has been neglected, as it has been in the great majority of gardens, let not the evil be aggravated by further neglect, but proceed promptly to remove the canes that have produced fruit, thinning out at the same time some of the current year's growths if, as they are almost sure to be, too numerous, and those remaining will yield twice the quantity of fruit that they would do if left to struggle for two or three months longer for the light and air they need, and in thus struggling exhaust themselves and weaken the plantation.

This work of summer-thinning is, if apparently simple, yet of real importance, but it can only be effectual by being properly done. A reckless boy or a rough workman will do as much harm as good. The thinning must be carefully and intelligently done. The operator must be made to understand that while it is of importance to remove the old canes and superfluous growths, it is imperative that the leaves be left on those remaining, as without leaves now there can be no fruit next year, and if those leaves are not developed the crop cannot be satisfactory; hence the importance of thinning in the first place, and the absolute necessity of doing the work with care and in a proper and reasonable manner. Every movement of a man's body among the growths should be in obedience to reason, not in spite of it, and every movement of the hand and knife be accompanied by thought and guided by intelligence. This is what is meant by doing work in a reasonable manner. We want more of such work in gardens—more thought, and less of mere rule of thumb; more individual intelligence, and less of that blind follow-my-leader routine that has brought so many Raspberry beds into their present unsatisfactory state. Let us not leave them there, but adopt forthwith a more rational system of procedure, and assuredly great gain will follow.

It is not at all difficult to remove the canes from Raspberries now and leave the foliage uninjured on those that are relied on for the next year's crop. The operator must first make his selection of the best canes, then sever the others and remove them gently downwards until they lie flat on the ground. Scarcely a leaf need be broken in doing this work. The canes left may be very loosely secured to the stakes; the refuse can then be removed, and the bed will have a neat appearance, showing that it is cared for and tended by a real gardener, and not by an untrained manual worker, so many of whom pass as gardeners now-a-days to the prejudice of competent men, and also, it may be added, of employers. No gardener ought to be placed in charge of any establishment of importance who is not able to give a reason for everything he does. He will then work on a sound principle, and certain of the results that will follow; but a man who works by guess, does

something that he thinks he has seen others do, is about as apt to fail as succeed, as there may be circumstances which his untrained mind did not enable him to appreciate that rendered his and his neighbour's case the reverse of identical. There is nothing more true than the old saying, that work well done is twice done, and this applies with special force to Raspberries, and indeed Vines and fruit crops generally; for if pruning and thinning are properly done in summer the crops of fruit are greatly increased, and the winter work is reduced by half the labour that would be otherwise requisite for its performance.

By adopting the practice recommended in Raspberry culture large bunches of fruit are produced almost to the ground, and with otherwise good culture three quarts of fruit have been gathered from a bush; according to the rough-and-ready mode of culture, or want of culture, not more than one quart would have been produced on the same space of ground. By the thicket system the soil is exhausted, while light and air are not utilised; but by a more rational process the resources of the soil under the beneficent influences of those all-important elements are turned to direct and profitable account. Old diggers will probably not accept this doctrine, but young probationists may possibly ponder over it with advantage. In the meantime, however, all who grow Raspberries will not err by thinning out the crowded growths now instead of waiting until winter.—A NORTHERN GARDENER.

CARNATIONS FROM SEED.

BEAUTIFUL as the choice named varieties of Carnations admittedly are that are propagated by layers, it is a question if they are so useful to the majority who grow flowers for decorating their rooms and gardens as Carnations that are raised from seed. Many of the finer florists' varieties that are so regular and rich in their markings are comparatively delicate in constitution, and if the plants pass the winter in the open ground they produce but few flowers the following summer. It is true that such varieties are usually wintered in pots, and undoubtedly they are worthy of the attention that they receive in this respect; yet there are many great admirers of Carnations who are not able to grow them after the manner of the florists, nor do they desire to grow them with the same object, yet they may have hundreds, even thousands, of these sweet and attractive flowers, with almost the same ease and certainty as they can produce Wallflowers and Sweet-Williams; and this is by raising the plants from seed.

A strong well-grown plant of a seedling Carnation will produce five, even often ten times, as many flowers as a plant of a named florist's variety that is the result of a layer, and the flowers of the former will be as valuable for vase decoration as the latter, and can be cut without compunction or hesitation. Indeed, when a plant produces fifty or a hundred flowers, as many seedling Carnations will and do, it is an advantage to the plants to relieve them of a portion of their burden, and there are at the same time plenty of flowers both for the vases indoors and for leaving the plants attractive in the flower beds. Further, increasing the plants or raising a stock in the manner indicated being the easiest mode of all, it is suitable for beginners who will, after growing seedlings for a year or two, almost certainly desire flowers of higher quality, and gradually they will gain experience and also be impelled to purchase a few of the named varieties, and thus become florists. This is in fact the way in which new florists are made. They start like boys at school with what is easy, and on accomplishing their first task acquire a liking for the work, and so go on step by step to greater attainments, and become in time teachers instead of learners. Is not this the course that the cutler florist of Sheffield pursued—Mr. B. Simonite, who now ranks among the foremost Carnation growers of the day, and is the raiser of some of the standard varieties? Let others follow in his footsteps. The path leading to success is open to all, if it is pursued intelligently and perseveringly.

But it may be urged that a portion of the plants that are raised from purchased seed will produce single flowers. No doubt this will be the case, but even those are suitable for cutting; yet the great majority of the plants will yield double flowers, a few of which in all probability will be of standard merit and worthy of being perpetuated by layers. This very probable step is a clear step in advance to floristhood, and is certain to lead to further progress, and possibly to future fame. It is encouraging, too, that plants thus raised—that is, by layers from seedling plants, nearly always flourish. They appear to inherit in a great degree the vigour of the parents, with their hardiness and floriferous character, while the markings usually become brighter and more

defined. But it is for affording cut flowers and making gardens delightful that the mode of raising the plants from seed is recommended. Carnation seed is usually grown on the continent, where great care appears to be taken in selecting the varieties, for assuredly the produce of the seed that is sold by the leading nurserymen and seed merchants is much superior to that of a few years ago.

The seed may be sown either in the spring in a little heat or late in summer, in this case no artificial heat being required. Spring-raised plants are apt to become too large before winter, yet few, if any, of them flower; therefore summer sowing is preferable, as sturdy plants are produced that will pass the winter with little or no protective aid, and will flower beautifully the following summer. June is perhaps the best month for sowing, but if seed is sown now—at once, a valuable stock of plants may be obtained that will eventually give much satisfaction.

It is well to sow in boxes, nearly filling them with a mixture of sandy loam and leaf soil, watering it copiously, sprinkling the seed thinly, and covering with squares of glass. The boxes should either be placed in a shaded position or covered from the rays of the sun, it being essential that the soil be kept constantly and regularly moist. Shortly the seedlings will appear, when air and light must be admitted; and in due time the young plants must be transplanted in generous soil, either in other boxes that are larger and deeper, or under handlights, and a stock of healthy plants and eventually a wealth of handsome fragrant flowers will reward the cultivator for his pains.—J. W.

NEW PEAS—CARTER'S STRATAGEM.

PERMIT me to thank all those correspondents who have communicated their experiences in the culture of Day's Early Sunrise Pea. Although there is a great divergence of opinion relative to the merits of that Pea, I think we shall at least be justified in leaving out the adjective "early." Day's Sunrise appears to be a good second early Pea, but I shall not venture to rely on it for a first crop. It appears to me that such letters as those that have been published cannot fail to be of great practical value to many whose love for their gardens is greater than their means of purchasing new introductions. I must confess to a hankering after everything that is new, but can no longer indulge in the pleasure of purchasing articles of speculative merit; I have, therefore, perforce to bide a wee, and profit by the experience of others. It is a great satisfaction that there are those in the gardening ranks who are so ready to aid through the medium of the Journal in imparting information that is of substantial use to many readers; and as experience has taught me that a specific request is followed by the most satisfactory results, I will now venture to ask for practical information relative to the merits of Carter's Stratagem Pea that was sent out this spring. There must be several readers who have tried this Pea, and information given in respect of it with the same freedom as in the case of Day's Sunrise will be very welcome to me, and I doubt not to many others similarly circumstanced.—CLERICUS.

DIFFICULTIES IN GRAPE-GROWING.

YOUR correspondent Mr. Jacob Robinson, writing under this heading in your last issue, may consider himself fortunate in managing to keep his Vines from scalding for so many years past. If I read correctly his statement I must at once conclude his vinery is insufficiently ventilated. During the extreme heat experienced of late, vineries could not be too much ventilated; scarcely a breath of air existed, and the ventilators opening only in the end is not sufficient to cause a thorough circulation of air, which is most essential to the proper development of Vines. It would prove a decided advantage to the Vines if the house were more freely ventilated at the top, and undoubtedly prevent the bunches being scalded in future. It is not easy to determine the cause of scalding on this particular occasion. The Vines might have been dry at the roots, or their energy so depressed from one or more causes that it would be impossible for them to resist the burning heat of the sun. It is not easy to suggest the reason why the Vines do not do so well in the other house. It not unfrequently happens that Vines in the same house do not always do alike, some doing well, while others will do but poorly. The erection of stables or any other structure at the back could make little difference. They should do as well with only a back wall as if joined to any other building. Hundreds of vineries are built with only a single wall at the back, and answer remarkably well. Have the Vines been overcropped at any time during their existence? The soil in the border may have become exhausted, and be the cause of the deficiency in size of bunch and

berry ; if so, the roots should be lifted wholly or partially, and the border renewed with fresh soil. This might prove very beneficial and produce the desired effect. Vines that have been restricted in growth for a number of years often produce small bunches and berries. The growth should be allowed to extend at the top and bottom, which would increase the root-action, and add vigour and energy to the Vines.—W. B.

MR. ROBINSON thinks it absurd to shade Vines to prevent them scorching. It is seldom that shading is necessary ; but under the extreme heat that has been lately experienced, together with the insufficient provision for ventilation of the vineries under notice, a little whitewash sprinkled on the glass would have been a very wise proceeding, or at any rate far less absurd than allowing the Vines to be injured. It is not at all rare for the most accomplished of Grape-growers to shade the Vines slightly when they are endangered by extreme heat, and certainly a film of white-wash does not obstruct the light any more than the clouds do on a dull day. It is questionable if the ventilation described was advised by Mr. Rivers. His system, if I remember rightly, applied to span-roofed houses, where the circulation of air is much greater than at the top of a lean-to, where the radiation of heat from the wall above is very considerable. Rather than have a house so close as that described I would break a few of the top squares, and also shade if it were needed, as the lesser of two evils.—GRAPE-GROWER.

I REMEMBER some years ago, when Blondin the celebrated tight-rope walker came to Cirencester, about half the Grape-growers had their Grapes badly scalded. It was an unusually hot day, with the thermometer registering over 90° in the shade. On a bright sunny morning, whilst many amateurs had gone up into Earl Bathurst's park to see the performance, the mischief of scalding was done. I put every ventilator in my house open to the fullest extent, also the door, and escaped with only one bunch scalded. This was ten or twelve years ago, and we have not had another day to equal it since. We have had a day or two with the thermometer about 90° this year, and I kept a sharp look-out on the vinery, but, as there was plenty of foliage at the top, did not open all the ventilators to the fullest extent. I think that in all probability many years will pass before Mr. Robinson's Grapes are injured again, but if they are it will be a sure sign that the ventilation is not sufficient. It evidently was not sufficient for the exceptional weather we have lately experienced. I think there is no doubt his second house would be improved by more shelter.—AMATEUR, Cirencester.

POSSIBLY many of your readers will take a lively interest in the statement of Mr. Jacob Robinson concerning the scalding of Grapes, for without doubt this has been a most trying season for amateur Grape-growers, and perhaps, too, for some others. Your correspondent has a lean-to house 20 feet long, 10 feet wide, and 12 feet high, built against the south side of his dwelling-house. The front sashes are 3 feet deep, and every other one opens for ventilation. The roof is fixed, and top ventilation can only be had by means of the triangular pieces which open under each end of the roof to the depth of 2 feet. The ventilators were open to their full extent on the 4th ult., and had been partially open throughout the previous night, yet every bunch on the upper half of the rods was badly scorched, and your correspondent naturally wants to know the reason, and how to prevent a recurrence of such a misfortune.

We will first confine our attention to this house, and see why the Grapes should scald there, and possibly at the same time some light may be thrown on the opposite side of the question as to why they did not scald in the other house, which was simply a continuation of the building in which the injury took place.

Your correspondent quotes from Mr. Rivers' book that "Grapes can bear any amount of sunshine," which is possibly correct when the air in which they grow is not confined, also in ordinary summers and ordinary vineries it may be said to be almost correct if we except one or two varieties of Grapes. But Mr. Rivers, although he lived a long and noble life, did not experience many such extraordinary ranges of temperature as we have done during the last six or seven months—viz., from below zero to 97°, and it is probable that had that good and honest man lived to this time he might have seen occasion to modify some of his ideas, as I have some of mine, relating to this subject.

Not long ago I held the opinion, and many a good cultivator shared it, that what was called scalding was the result of too rapid evaporation, and was in fact a chill rather than a scald. Now, although I have no doubt that a similar effect to scalding is often produced in this way, yet I have had ample proof that in a

certain stage of growth actual scalding is liable to take place independent of the state of the atmosphere as to humidity. The stage at which this is most likely to happen is during stoning, when there is no visible growth of the berry ; and as Grapes grown in an unheated house will generally colour simultaneously with their last swelling, the danger is often not passed till colouring has commenced. Before stoning, and also immediately after, the Grapes will bear with impunity, as far as scalding is concerned, a much higher temperature than they will during that process. If the thermometer is kept in the shade, as it always ought to be, it is not advisable to allow it to rise much higher than 80° during the time of danger. Of course, with the tropical weather we lately had the temperature could not be kept so low, but in my case every available ventilator was open, sometimes including the doors ; and although Mr. Jacob Robinson says "it seems absurd to think of shading Vines," yet we pocketed the absurdity and sprinkled some whiting and water over the roof with a syringe, and had we such a sun trap as Mr. R. to deal with, we should probably have added a handful of soot.

Your correspondent's house, standing as it does against the south wall of the dwelling-house, which probably rises 20 or more feet above it, and catches and stores up the rays of sun all day long, will at midday, on such a day as that mentioned, have a sun temperature of 140° or 150°, which is thrown back with the reflected light on to the Vines. Is it, then, a wonder that they should suffer ? The end ventilators under such conditions would be of little use, as the air outside above them would be nearly, or quite, as hot as that under the Vines. I certainly advise Mr. Robinson to have more top ventilation, which, although it might not have the effect of keeping the temperature lower on such a day as that under consideration, would cause a greater circulation of air, and that alone would lessen the danger. Removing the glass to the width of 6 or 9 inches at the top, and placing a board on hinges there similar to what he has on his other house, would probably answer the purpose. Also he must not be afraid to shade a little during stoning, and also during flowering, should the weather be excessively bright. A little whiting and water put on the glass with a syringe is as good as anything, as it is easily and quickly applied and comes off with the first shower. The reason scalding has not taken place in previous years is that we have not before had so high a temperature so early in the season. Four years ago we had the thermometer above 90° one day in the middle of July, and once again in the middle of August ; but I think there was nothing like the continued sunshine which we have this year experienced.

And now, why did not the Grapes scald in the other house, which is merely a continuation of the same range and the same border ? Because there the ventilation is thorough, and it is not so much required. A mere 9-inch wall at the back, only rising to the height of the house, which is but about 8 feet, will not husband up any heat when shaded by the Vines, and a 6-inch board running the entire length at the highest point and opening to the north will, in conjunction with a similar ventilator running along the front, generally be quite sufficient. To the further question, Would building a stable or a coach-house at the back make the Grapes as early and as fine as those in the other house ? I should say, Probably not, unless the roof is carried to the same height as the other house, and the wall of the coach-house or stable is also carried up as high as that of the dwelling-house ; but undoubtedly a building of any kind, or even a brick screen run up behind the 9-inch wall, leaving a hollow air-tight space only 3 or 4 inches between, would assist considerably in keeping up the temperature in spring, and thereby forward and improve the crop.—WM. TAYLOR.

ALPINE AURICULAS.

IN the spring of the year few flowers are more lovely than the above, and they are worthy of every care and extensive cultivation. The Alpine varieties are very easy to manage, and can be readily obtained from seed or by dividing the plants after flowering. The seed on established plants outside will now be ripe, and should be sown at once after being gathered in pans filled with any light compost. The seeds should be sown on the surface ; covering is not necessary when the soil is made even and smooth, well watered, and covered with glass until the seed germinates. The pans containing the seed will do in a cold frame, or better still if they can be placed where a gentle heat can be given, as under these circumstances the plants make greater progress. It is judicious to encourage the seedlings as much as possible, so that they will be strong before winter. When in cold frames they only grow slowly at first, and are very small when winter approaches, and in consequence are liable to damp off. Great advantages are to

be gained by pushing on the seedlings at first and having them pricked-out singly in other pans or boxes to become established before winter. They can be wintered in cold frames, and in early spring, when all fear of frost is past, they should be planted in beds prepared for them by the addition of old potting soil and leaf soil. The plants should be about 4 inches apart, and remain in these beds until they flower, when only the best should be retained. Many of the strongest will flower the first season, but when in such a weak state it is difficult to judge of their merits; but the second season they should be strong and flower profusely, when seed can again be saved from the best varieties.

It is wise to allow them to flower before planting them in permanent positions. The soil should be made rich and light, so that water will not stagnate about the roots. They should be taken up, divided, and replanted every two years after flowering. It is not necessary to do it annually, as they look much better in good clumps when employed in shrubbery borders or similar positions than when single crowns are grown. Those that have not commenced cultivating Alpine Auriculas should lose no time in obtaining some seed, as they not only enliven the garden outside in spring, but are admirably adapted for pots in conservatories or any house that has to be kept gay in early spring. When grown in pots they should be placed in them after they have flowered, and will soon become established and flower well in the early spring. Good plants can be lifted and placed in 5-inch pots and kept close in a frame for a short time until they become established. The plants can then be placed outside until the approach of frost, when they can be wintered in any cool structure, and will well repay for any care or trouble devoted to them.—SCIENTIA.

LIVERPOOL HORTICULTURAL SHOW.

WHEN the gardeners of the Liverpool district produced the first great Show of the present Association in 1879 there was by no means an unanimity of opinion that they would remain sufficiently united to place the organisation on a firm basis and produce other shows of a similar nature. They have, however, had two shows since then, and the Exhibition now to be noticed was decidedly the finest of the three; indeed it ranked amongst the finest provincial gatherings of the kind that has been seen this year. The Exhibition was held as usual in Sefton Park, and the several fine marquees and the great display of horticultural implements and appliances presented quite an imposing appearance. A new feature was the groups of plants arranged for effect, and as a first attempt the result was highly encouraging. The competition and the plants were both good, but there is something to be learned in the tasteful disposition of the collections, and the reason becomes the greater for continuing the classes. The specimen plants were generally of the highest merit, and the fruit was excellent, the Pines, Grapes, and Peaches not having been surpassed at any other show that we have seen this season, while the vegetables were of good average quality.

The capacious marquee in which the specimen plants were arranged had a magnificent effect. The chief collections were arranged down the centre, on the ground, tables extending round the sides for smaller plants in the different classes. The first class in the schedule was an open one for twelve stove and greenhouse plants, six to be in flower, the prizes being £12, £8, and £5; these were won respectively by Messrs. Cole & Son, Manchester; Mr. Peers, gardener to G. Raynor, Esq., Wavertree; and Messrs. W. Caldwell & Sons, Knutsford. It is not necessary to enumerate the first-prize collection, the Manchester plants being well known; it must suffice to say that the group was a strong one, or it would not have secured the position against such meritorious examples as were staged by the local exhibitor. These included large and fine specimens of *Dicksonia antarctica*, *Latania borbonica*, *Cybotium princeps*, *Calamus ciliaris*, with about twenty growths from 6 to 8 feet high; *Croton angustifolius*, splendid; and a good *C. Disraeli*; *Allamanda Hendersoni*, very fine; *A. grandiflora*, good; with creditable specimens of *Bougainvillea glabra*, *Statice Holfordi*, *Vinca alba*, and an *Erica*. The Knutsford plants were neat and generally good, but not so large as the others. The next class for ten plants (local) was perhaps the most prominent feature of the Show, several exhibitors staging remarkably fine collections. The first-prize group from Mr. Mease, gardener to C. W. Neumann, Esq., Wyncote, Allerton, has rarely been surpassed at this season of the year. *Croton variegatus*, 8 feet in diameter and in splendid colour, was equalled by *C. interruptus*, and between them was a very fine *Latania*; *Alocasia macrorrhiza variegata* was vigorous and clearly marked; *Erica jasminiflora alba*, 3 feet in diameter, very fresh; *Alocasia metallica*, fine; *Clerodendron Balfourianum*, a grand oval about 5 feet high; *Bougainvillea glabra* of the same size and in superb condition; a splendid specimen of *Allamanda Hendersoni*, and a rich mass of *Kalosanthes coccinea* 4½ feet in diameter, completed this noble group. Mr. Faulkner, gardener to F. R. Leyland, Esq., Woolton Hall, was an excellent second. He staged the finest *Vinca* that has been seen for years, *Kalosanthes miniata* about equally

fine, *Erica metulæflora superba* very rich, with *Dipladenia amabilis* and *Allamanda nobilis*, both very good. The best foliage plants were *Gleichenia rupestris*, *Kentia australis*, very fine, and a healthy *Cocos Weddelliana*. Mr. Blomily, gardener to H. Crossfield, Esq., Oaklands, Aigburth, had third honours with a neat, bright, and fresh collection, the notable plants being the best *Croton Weismanni* in the Show and seldom surpassed anywhere, a good *Brainea insignis*, and a fresh and healthy specimen of *Ixora coccinea*. In the open class for six plants in bloom the last-named exhibitor won premier honours. *Kalosanthes coccinea* 4 feet in diameter was splendid in truss and rich in colour, the finest variety we have seen of this good old plant; *Allamanda grandiflora*, excellent; *Ixora javanica*, a one-sided specimen; a very good *I. coccinea*; *Bougainvillea Vreelandi*, 3½ feet across; and *Statice Holfordi*. Messrs. Cole were second in this class, and Mr. Faulkner a remarkably close third. In the local class for four plants the prizes went to Messrs. Mease, Blomily, and Faulkner in the order named. Mr. Mease's *Bougainvillea* and *Allamanda* were of great excellence; Mr. Blomily's *Kalosanthes Madame Celeste* Winans, silvery pink, 4½ feet in diameter, highly attractive; and Mr. Faulkner's *Vinca* and *Lantana Distinction* being the noteworthy plants in this class. Mr. Blomily, who is clearly a first-rate grower of *Ixoras*, secured the first prize in the single specimen class (stove) with a remarkably neat and fresh example of *I. coccinea*; Mr. Mease being second with *Allamanda nobilis*; and Mr. Ramsden, gardener to W. Rathbone, Esq., Green Park, Wavertree, third with *A. Schottii*, both exhibiting fine specimens. In the corresponding class for greenhouse plants Mr. H. Elliott, gardener to Mrs. Bateson, New Heys, Allerton, was placed first with *Erica retorta major*, remarkably well grown, the plant being 3½ feet in diameter and the flowers very fine; Mr. Cromwell was second with a good *Erica ampullacea* Barnesi, and Mr. Mease third with the seldom-seen but good old Cape plant *Selago corymbosa*.

Mr. Cubbon, gardener to Mrs. Alison-Johnson, was in the foremost place in the open class for eight fine-foliaged plants with excellent examples of culture, closely followed by Mr. Peers and Messrs. R. P. Ker, the last-named exhibitors staging a very fine specimen of *Croton Disraeli*. In the class for six plants Mr. Cromwell was first, *Croton Weismanni* being in superior condition, and *Anthurium crystallinum* having grand foliage. Mr. Faulkner was a good second in this class, and Mr. Finnigan, gardener to W. Burnfeet, Esq., Huyton, third with neat specimens. Mrs. Ramsden was placed in the first position in the open class for eight Ferns, his best plant being *Alsophila excelsa*, healthy and fine. Mr. Faulkner was an extremely close second, *Adiantum lunulatum* 4½ feet in diameter and *Davallia Tyermanii* being perfectly unique, while *Nephrolepis davallioides furcans* was very fine. Mr. Gore, gardener to Thomas Holder, Esq., Aigburth, was third, his most attractive plant being *Leucostegia chærophylla*, a fine example of an elegant Fern. In the local class for six plants Mr. Peers won the first prize with superior specimens, *Cybotium barometz*, deep green, *Davallia polyantha*, and *Gleichenia rupestris glauca* being very fine. Mr. Roberts had the remaining prize with a meritorious collection. In the single specimen class Mr. Whitfield, gardener to J. T. Cross, Esq., Aigburth, and Mr. Cromwell secured the prizes respectively, both with *Adiantum farleyense*. A fine plant of *Adiantum Flemingii* was exhibited and highly worthy of a prize, but no exhibitor's name was attached to it. In the open class for twelve hardy Ferns Messrs. Faulkner and Gore were the prizewinners, and in the local class for six plants the first-named exhibitor and Mr. Cubbon were awarded the prizes for very fresh and healthy specimens. *Selaginellas* were not large, but very healthy, the prizes for six pans going to Messrs. Wright, gardener to E. Lawrence, Esq., Beechmount, Aigburth; Cubbon, and Foster, gardener to J. Brancker, Esq., Wavertree; the notable pans were *S. atro-viridis*, *S. Wallichii*, and *S. umbrosa* in the first-prize collection.

Orchids were sparsely exhibited. It is, no doubt, rather late for these plants, still good examples are usually forthcoming when open classes and good prizes are provided. In the local classes for four Orchids Mr. Sherwin, gardener to M. Sparke, Esq., Charleswood, Roby, was the chief prizewinner, the best examples being a fine pan of *Disa grandiflora* with thirteen spikes, several bearing four flowers, *Odontoglossum Uro-Skinnei*, and *Saccolabium Blumei majus*. Mr. Mease followed, his notable plant being one of the finest varieties of the above-named *Saccolabium* that has ever been exhibited, the spike being vigorous, the flowers fine, and the colour rich. Mr. Landon, gardener to Mrs. Banner, Birkenhead, secured the first prize for a specimen Orchid with *Oncidium Lanceanum* with seven spikes, the best having twelve flowers. The third-prize card was placed, by mistake we presume, to a strong plant of *Anthurium Andreanum* exhibited by Mr. Mease, and on attention being drawn to the circumstance the honour was transferred to *Peristeria elata* with fifteen spikes from the same exhibitor.

Zonal *Pelargoniums* were very fresh and fine. There were classes for pyramids as well as for ordinary dwarf-trained plants; the former were about 4 feet high and 2½ feet in diameter at the base, covered with fine trusses and foliage. Messrs. Whitfield and Lockett were the successful exhibitors. The dwarf plants, 3 to 4 feet in diameter, were equally good from Messrs. Wright, Whitfield, and Hurst. *Ericas* were small but fresh from Messrs. Caldwell, Faulkner, and Cole. *Fuchsias* were good but much too crowded. In the class for six distinct varieties Mr. James Hurst staged some well-grown and profusely flowered plants, such as *Marginata*, *Surprise*, *Miss Moon*,

John Gibson, and Mrs. Marshall. Mr. Butler was a good second; and Mr. Gore, gardener to T. Holden, Esq., Aigburth, third. In the class for three plants Mr. Wright, Mr. Savin, gardener to Henry Thomson, Esq., and Mr. W. Evans obtained the prizes. Coleuses were very good, and Messrs. Savin and Bustard took the lead, while Messrs. Mease, Evans, and Savin took the prizes for Achimenes, which were shown in better condition than at any previous shows of the Society, but there is still room for improvement. Tuberous Begonias were a great feature in the Exhibition, and the plants showed a marked improvement over those shown last year. In the class for six Mr. J. Hurst and Mr. Wright took the lead, both staging excellent plants well grown and bloomed. For three plants Messrs. Wright, B. Cromwell, and Evans took the prizes in the order as named. In the class for a single specimen there was good competition, and plants nearly 4 feet through were staged; the prizetakers being Messrs. Mease, Hurst, and Wright. Some good plants of Caladiums were shown by Messrs. Mease and Wright. Cockscombs were only of moderate quality. Balsams were better, some of them good; the principal prizetakers being Messrs. A. R. Cox, Savin, and Mease. Petunias were staged in very good condition, and that successful exhibitor, Mr. Mease, again coming to the front, followed by Mr. Hurst, gardener to W. B. Bowering, Esq., Aigburth. The plants were 2 feet in diameter, densely flowered and effective.

Table plants were not shown in large quantities, Mr. W. Pratt being first for eight plants with *Croton majesticus*, *Dracaena Ernesti*, *Aralia elegantissima*, *Kentia Balmoriana*, *Pandanus Veitchii*, *Geonoma gracilis*, *Aralia Veitchii*, and *Dracaena gracilis*. Mr. J. Ward and Messrs. Jones & Sons, Shrewsbury, had the remaining prizes.

In the class for new and rare plants sent out since 1878 Messrs. R. P. Ker & Sons, Aigburth, obtained the Society's gold medal, and staged a neat and attractive group, such as *Croton interruptus aureus*, a fine narrow-leaved variety; *Croton Warreni*, an excellent plant in good character; *C. Hawkeri*, fine; *C. Devonensis*, *C. Finneanus*, the result of a cross between *C. Williamsii* and *C. Disraeli*, and promises to become a good and distinct variety; and *C. Aigburth Beauty*, another promising seedling; *Maranta Clokei*, *Adiantum Bausei*, *Lomaria obtusatum* (New California), a very fine and distinct form, for which a first-class certificate was awarded; *Dracaena Bella*, *Juncus zebrinus*, *Begonia Daviesi hybrida*, one of the finest of the doubles, being very dwarf, and flowering abundantly; Ivy-leaved *Geranium Gloire d'Orleans*, brilliant and good; *Dracaena Lindenii*, and *Nidularium splendens Binoti*.

GROUPS.—The prizes offered for groups were very well competed for considering it is the first year for such competition, three groups being staged in the open class, and six in the class devoted to local exhibitors. The plants were arranged in the centre of two long tents, with the Roses and other cut flowers round the sides of one, and the fruit and vegetables round the other. The collections were a fine feature of the Show, and added materially to its attractiveness. On the whole they were not of that excellence we have seen at some other exhibitions, at the same time they were very creditable to the exhibitors. In the open class, space not exceeding 250 square feet, Messrs. R. P. Ker & Sons, Aigburth Nurseries, were first, and staged choice plants, including two very fine Prince of Wales Crotons, a good *C. Queen Victoria*, intermixed with *Gloxinias*, Ferns, Palms, Begonias, Zonal and Regal Pelargoniums, *Dracaenas*, and many others. Messrs. Caldwell & Sons, Knutsford, were second, the old *Vinca alba* showing to advantage. Messrs. F. & A. Dickson & Sons were third, having in their group a few good plants of *Acer Negundo variegata*, which imparted to the group a light and beautiful appearance. The local groups were also circular, the space not exceeding 150 square feet. Mr. A. R. Cox was placed first with the lightest and most distinct group in the Show, the groundwork consisting chiefly of Ferns, out of which were elevated Palms, Crotons, *Dracaenas*, Coleuses, *Alocasias*, *Lobelias*, and other plants, the pots being hidden from view with *Selaginellas* and other suitable plants. The arrangement was too artificial, and lacked brightness. Mr. Mease was placed second, and Mr. Sherwin third; but the arrangements were too formal, more relief being needed by placing taller plants near the front. Messrs. James Dickson, Newton Nurseries, staged an excellent collection of choice new Conifers, for which they obtained the Society's gold medal. Messrs. F. & A. Dickson also staged a very fine assortment.

CUT FLOWERS.—These were shown in good condition in all the classes devoted to them, and the competition was keen in many instances. The Roses were good and numerous considering the lateness of the season. The box of stove and greenhouse blooms staged by Mr. Faulkner are worthy of special note, also the box of herbaceous cut blooms shown by Mr. Mease. In the class for forty-eight Roses, triplets, Messrs. Cranston & Co., Hereford, staged in their usual style and secured their usual position—first. It is not necessary to enumerate the varieties. The same exhibitors had the first position in the class for forty-eight single blooms, followed by Messrs. James Dickson & Sons and Messrs. F. & A. Dickson & Sons of Chester. In the first lot Mrs. Jowitt was the best bloom in the stand, other good blooms being Louis Van Houtte, Fisher Holmes, Madame Gabriel Luizet, L'Esperance, Hippolyte Jamain, Duchesse de Vallombrosa, Dr. Andry, and John Hopper. The most noteworthy blooms in the second stand being Louis Doré, a fine Rose; Masterpicce, fine; Comtesse de Paris, Madame Ducher, Empress of India, and a good example of *Niphetos*. The third-prize lot was smaller but even, the best

blooms being Duchess of Bedford and A. K. Williams. Mr. Jowitt, Hereford, was the only exhibitor in the open amateur class for twenty-four triplets, and staged in his usual excellent manner. In the class for twenty-four single blooms J. B. Hall, Esq., Leechwood, Rock Ferry; Mr. W. Owen, gardener to T. Griffiths, Esq., Oxtun, Birkenhead; and Mr. Mease obtained the awards as named. In the first stand good blooms of Dingee Conard, Mdle. Marie Finger, Perle des Jardins, and Duke of Edinburgh were staged. In the class for twelve blooms D. Walford, Esq., Bebington, Birkenhead, was first with a good *Maréchal Niel*, Beauty of Waltham, and La France. Mr. Owen was second, having a good Mdle. Eugénie Verdier, Mr. T. B. Hall being third, having a good *Sénateur Vaisse*. In the class for twelve blooms of any one dark variety Messrs. Cranston & Co. were first with fine blooms of Mrs. Jowitt, which is evidently a fine late Rose, and was very rich in colour. Messrs. James Dickson & Sons were second with Alfred Colomb; and Messrs. F. & A. Dickson and Sons third with the same variety. Messrs. Cranston & Co. were again first in the class for twelve blooms of any light Rose with *Baronne de Rothschild*. In the class for the most tastefully arranged box, the prizes being given by Messrs. Cranston & Co., the first prize was won by E. Laxton, Esq., Ask Villa. The stand contained many Teas, and was edged with *Asplenium Ruta-muraria*. Mr. Waterman, gardener to A. Late, Esq., was second. Only two lots were staged. One exhibitor only staged for the prize given by Mr. W. Paul, Waltham Cross, for twenty-four blooms staged with buds and leaves as cut—namely, Mr. T. B. Hall, but the stand was not remarkable, as there were no buds and but little foliage, yet the blooms were good. Mr. W. Paul staged several boxes of blooms not for competition, which were highly commended by the Judges. Amongst the blooms Lady Sheffield is a promising Rose, being many shades lighter than Marie Baumann; Duke of Albany, a good Rose, much after the style of Duchess of Bedford. One of the boxes contained a rather promising unnamed seedling, the edge of the petals being slightly tipped with white. In the same box Masterpiece was good, also Red Dragon, said to be a good climbing Rose. Messrs. Dickson & Robinson of Manchester also staged a good general collection of Rose blooms, which were also highly commended. Messrs. Cranston & Co. exhibited a box of their new Rose *Mrs. Gretton*, a good dark variety, which was awarded a certificate of merit. As may be imagined by its parentage—Louis Van Houtte and Xavier Olibo, it is extremely rich; the form is also excellent, the centre being full and symmetrical, and the stout outer petals recurving gracefully. Some pilferer abstracted one of the blooms, but as the buds had been previously cut out he will not be much the richer for his pains nor easier in his conscience—if he has one.

In the class for eighteen varieties of stove and greenhouse cut flowers Mr. Faulkner was first with very fine bunches of *Kalosanthes coccinea*, *Odontoglossum vexillarium*, *Lapageria alba*, *Ixora Prince of Wales*, *Erica tricolor*, *Eucharis*, *Allamanda Hendersonii*, *Anthurium Schertzerianum*, *Ixora Williamsii*, *Dipladenia grandiflora*, and *Erietas Fairriana*, *Aitoniana*, and *Shannoni glabra*; Mr. J. Ward and Mr. Mease being placed equal second with very creditable boxes. In the class for twenty-four herbaceous cut blooms Mr. Mease took the lead with an excellent lot, including *Lilium auratum*, *L. candidum*, *Campanulas*, *Hypericum calycinum*, *Alstromeria aurea*, *Spiraea venusta*, and others; Messrs. J. Dickson & Sons, Chester, being second, and Messrs. F. & A. Dickson & Sons third, both having good collections. For twelve varieties Mr. Faulkner was first, showing *Dahlia Yuareii* very fine, Mr. Mease being second, and Mr. W. Bustard, gardener to J. Lewis, Esq., being third. For the best collection of wild flowers Mr. W. Friar, gardener to J. F. Robinson, Esq., Mossley Hill, who staged about one hundred varieties, was awarded the first prize; Mr. R. Gore being second. For two hand bouquets Messrs. Jones & Sons, Shrewsbury, Turner & Co., Liverpool, and Mr. John Mossley, Bolton, took the prizes in the order named. The awards went in the same order for one hand bouquet. In the local class Mr. H. Bodsworth, Stone House, Allerton; Mr. Evans, and Mr. Whitfield were the prizetakers.

FRUIT.—The show of fruit on the whole was excellent, and the competition keen in the Grape classes as well as in those devoted to Peaches and Nectarines. In the class for eight dishes, distinct, not more than two varieties of Grapes, two collections only were staged; Mr. J. Ward, gardener to T. H. Oakes, Esq., Alfreton, Derbyshire, and Mr. Faulkner, gardener to R. F. Leyland, Esq., Woolton Hall, Liverpool, securing the prizes in the order named. Mr. Ward had good dishes of Brown Turkey Figs, Bellegarde Peaches, Jefferson Plums, Downton Nectarines, Colston Basset Melon, Queen Pine, with Black Hamburg and Muscat of Alexandria Grapes. Mr. Faulkner showed Princess of Wales Peaches in excellent condition and a fine Queen Pine. In the corresponding class for six dishes four collections were staged. Mr. Elsworth, gardener to A. R. Gladstone, Esq., Court Hey, Liverpool, was awarded the first prize, having good Muscat of Alexandria and Madresfield Court Grapes fine in berry and colour, Conqueror of Europe Melon, Brown Turkey Figs, Pine Apple Nectarines very fine, and a superior dish of Bellegarde Peaches. Mr. Mease, gardener to C. W. Nenmann, Esq., Wyncote, Allerton, was placed second, and staged very fine Muscat of Alexandria and Black Hamburg Grapes, and a good Hero of Lockinge Melon; the third prize being obtained by Mr. Hannagan, gardener to R. C. Naylor, Esq., Hooton Hall, Cheshire, who staged good Madresfield Court Grapes and fine Royal Charlotte Peaches. For two Pines Mr. Faulkner; Mr. Goodacre,

gardener to the Earl of Haddington, Elvaston, Derby; and Mr. William Pratt, gardener to Lord Hill, Hawkstone, Salop, took the prizes in order named, all showing Queens in good condition, especially those that obtained the first award. In the class for one Pine Mr. Faulkner was again first with a good Queen; and Mr. S. Whitfield, gardener to J. T. Cross, Esq., Beechwood, Aigburth, was a good second. The competition was good in the class for four bunches of Grapes, two white and two black; Mr. Elsworthy, a local exhibitor, being the most successful, and staged well-coloured examples of Black Hamburgh, Muscat of Alexandria, Madresfield Court, extra fine; and a moderately fine bunch of Duke of Buccleuch. Mr. Ward was second, showing a good bunch of Buckland Sweetwater and other well-coloured examples, but smaller than the first-prize collection. Mr. Hannagan was third with bunches of good size, large berries, but not well finished. Ten exhibitors staged in the open class for two bunches of black Grapes, the first and third prizes remaining in the neighbourhood. Mr. J. Barker, gardener to Alderman Raine, Rock Ferry; Mr. J. Ward; and Mr. J. Dickinson, gardener to G. Atkinson, Esq., Rock Ferry, obtained the prizes as named with fine Black Hamburghs. For two bunches of Muscat of Alexandria Mr. Mease took the lead with very good and well-finished bunches, without doubt the finest in the Show. Mr. Elsworthy followed, showing good examples. In the local class for the same variety Mr. Mease was again first, followed by Mr. R. Brownhill, gardener to T. Hargreaves, Esq., Ravenswood, New Ferry. Mr. Metcalf, gardener to R. Anderson, Esq., Holt House, Tranmere, was placed third. In the corresponding class for two bunches of black Grapes Mr. Metcalf was first with fine Black Hamburghs, Mr. J. Barker second with Madresfield Court, and Mr. Elsworthy third with the same variety. In the open class for one dish of Peaches Mr. Elsworthy took the lead with remarkable fruit of Belle-garde; Mr. A. R. Keen, gardener to Sir T. Earle, Allerton Towers, second with Grosse Mignonne; and Mr. Goodacre third, showing the same variety as the first-prize dish. Six lots were staged. Mr. Elsworthy was again first in the local class for one dish, showing the same variety, followed by Mr. W. Evans, gardener to Mrs. Lockett, Grassendale, and Mr. A. R. Keen. In the open class for one dish of Nectarines Mr. A. R. Keen staged some fine large fruit of Downton, and obtained the first prize; Mr. Elsworthy second with Pine Apple, and Mrs. Horsfall third with Pitmaston Orange. In the local class Mr. A. R. Keen again took the lead with the same variety. Mr. Roberts, gardener to W. D. Holt, Esq., West Derby, and Mr. W. Evans took the remaining prizes. In the open class for one Melon Mr. Elsworthy took the lead with Dickson's Exquisite, fine in quality; Mr. Hannagan second with Conqueror of Europe, and Mr. Faulkner third with Best of All. Mr. W. Landon, gardener to Mrs. Banner, Pool Bank, Mr. Faulkner, and Mr. J. Dickinson secured the prizes in the local class. For one dish of Strawberries Messrs. Faulkner, Mease, and Elsworthy took the prizes with Eleanor, Mrs. Laxton, and Sir Charles Napier. One dish of Cherries—Mr. Hannagan first with White Heart, Mr. Elsworthy second with May Duke, and Mr. F. Ferguson, gardener to T. S. Patterson, Esq., third. In the class for six dishes of hardy fruits Mr. Hannagan was first, showing Early Beatrice Peach, Early Orleans Plum, White Heart Cherries, and British Queen Strawberry. Mr. W. Pratt was second, having good dishes of Apricots and Cherries, and Mr. Edwards third.

VEGETABLES.—These were staged in large numbers, and a marked improvement was apparent over those staged at the two preceding shows by local exhibitors. In the open class for twelve dishes, distinct varieties, there was only one exhibitor—Mr. J. Lambert, gardener to C. W. Wingfield, Esq., Onslow Hall, Salop. In the local class Mr. Faulkner was first, the best dishes being good Stamfordian Tomatoes, Telephone Peas, Early Nantes Carrots, and White Stone Turnips. Mr. A. R. Cox, gardener to W. H. Watts, Esq., was second; and Mr. Mease being third, his collection including a very fine dish of Mushrooms, eight collections being staged. For six dishes of Peas Mr. Mease was placed first with Telegraph, Telephone, The Baron, Laxton's Supreme, Challenger, and Stratagem; Mr. J. H. Goodacre second, having Day's Sunrise, Emperor of Marrows, Ne Plus Ultra, Harrison's Glory, and Criterion; Mr. J. Lambert being third. In the local class for four dishes Mr. Faulkner was first with Stratagem, Telegraph, The Baron, and Telephone; Mr. L. F. Turner, gardener to D. McIver, Esq., M.P., Bromborough, second, showing well Pride of the Market; Mr. A. R. Cox, Elm Hall, Wavertree, was third with similar varieties. In the class for six dishes of Potatoes, three round and three kidneys, Mr. Lambert took the lead with Schoolmaster, International, fine; Vicar of Laleham, Porter's Excelsior, and Fenn's Bountiful; Mr. Mease followed, showing well Pride of Ontario and Early Vermont; Mr. F. M. Green, Hale Hall, Liverpool, third, showing International, fine. In the local class Mr. W. Evans, Mr. T. Turner, and Mr. Mease took the prizes, showing much the same varieties. Messrs. Ward, C. Finnigan, and J. Lambert took the prizes for three dishes of Tomatoes; and Messrs. Mease, T. Wright, and Elsworthy for one dish. The prizes for Cucumbers were obtained by Messrs. C. Finnigan, E. Green, and G. Butler, gardener to T. Drysdale, Esq., Mossley Hill.

IMPLEMENTS.—The Society's gold medal was awarded to Messrs. Foster & Pearson, Nottingham, for their improved span-roofed portable greenhouse, which was strong yet light, ventilated on the most improved system, and the door latch superior to anything of the kind before exhibited. They also exhibited their patent span-roofed pit—a great acquisition. The Liverpool Horticultural Company (John

Cowan), also exhibited a greenhouse, portable, filled with plants and good Vines; also a collection of frames, for which they were commended. Messrs. F. & S. Mee of Liverpool were highly commended for a collection of boilers, &c. Mr. Joseph Bramham also exhibited his Allerton Priory boiler, and was awarded a certificate of merit for a small heating apparatus. Messrs. Glassey & Co., Liverpool, were awarded a certificate of merit for hand-painted vases and flower-pot covers; and Mr. Doyle of Liverpool for a collection of ornamental wirework.

Valuable miscellaneous collections of plants from Mr. B. S. Williams of Holloway, Messrs. Ker of Aigburth, and Mr. Cowan contributed materially to a really fine Show. Mr. Richardson the President, Mr. Bridge the Secretary, and all who aided in the arrangements, deserve high praise for the manner in which the Exhibition was conducted.

SHRUBS FOR A TOWN—ILEX HODGINSII.

YOUR correspondent "LANCASHIRE" asks on page 14 of the Journal for information about evergreens suitable for a hedge in an exposed smoky situation. The Yew and Thuja Lobbii both make capital hedges, but do not always thrive in such situations



Fig. 17.—*Campanula trachelium*. (See next page.)

as "LANCASHIRE" describes, therefore Conifers should not be planted in the neighbourhood of towns. For this purpose Hollies are indispensable, and none can be compared to *Ilex Hodginsii*; it is a strong and robust grower, with large, bold, and beautiful dark green leaves. It not only lives in smoky places, but thrives well and grows with great luxuriance. After several years' experience in the neighbourhood of one of the worst towns in Lancashire I have found nothing to equal the Holly referred to for any purpose, either as single specimens on lawns or for shrubbery borders, and if more largely planted in many places greater satisfaction would have been given, and much more pleasure derived from it, than from the dead or dying objects to be seen in the majority of gardens in the neighbourhood of towns. When using this Holly for a hedge some care should be taken to keep it in order

with the knife instead of cutting it with shears. When left to grow naturally it is very liable to grow thin on the most exposed side, but attention to pruning remedies this, and the hedge in consequence grows thick and resists with much greater force the wind and chemical vapours carried with it. It is also important when growing as single specimens that the same precaution is taken. *Ilex Hodginsii* has during the past severe winter or two lost a much less percentage of foliage than any other variety. The common Holly, recommended by many for the purpose of forming hedges, is not suitable for the neighbourhood of towns, and is considerably injured or will die where *I. Hodginsii* flourishes and does well. I am acquainted with a hedge planted about twenty years ago of this variety in the neighbourhood of Liverpool, and on the worst side of the town for the growth of evergreens. It is now about 25 feet high and nearly as many feet through at the base.—LANCASTRIAN.

PLANTS CERTIFICATED AT CHISWICK.

At a meeting of the Floral Committee held at Chiswick on the 22nd ult., James McIntosh, Esq., in the chair, certificates were awarded as follow:—First-class certificates were granted for the undermentioned Pelargoniums as bedding plants:—*Erckmann Chatrian* (Lemoine).—Plant of very dwarf compact habit, very free-flowering; trusses very large and compact, of a beautiful crimson-shaded scarlet; very showy. *Député Duvaux* (Lemoine).—Very dwarf habit, free-flowering; trusses large, well thrown above the foliage; very dark scarlet. *No. 9* (Lemoine).—Fine close-growing habit, very free-flowering; the trusses very large, and well thrown up, of a beautiful clear scarlet; very effective. The following received second-class certificates:—*Louis* (Pearson).—Plant of very fine dwarf habit, free-flowering; trusses and individual flowers large, of a beautiful magenta-scarlet; good. *Excelsior* (Denny).—Fine dwarf habit, free-flowering; the individual flowers large, of fine form, bright scarlet with distinct white eye; very pretty.

SINGLE PELARGONIUMS IN POTS.—First-class certificates were granted to *Dr. Orton* (Pearson).—Plant of very fine dwarf compact habit; very free-flowering, the trusses and individual flowers large and of fine form, very dark scarlet, very effective for pots. *Hettie* (Pearson).—Plant of very strong vigorous habit; very free-flowering, the trusses very large, well thrown upon very strong footstalks; the individual flowers very large, of fine rounded form, very pleasing magenta shaded scarlet with clear white eye; remarkably fine. Similar awards were made in the class of double-flowering Pelargoniums to *Sylvia* (Pearson).—Plant of very dwarf compact habit; remarkably free-flowering; trusses of medium size, very compact, well thrown above the foliage. Flowers beautiful shade of pink; very fine. *Hero* (Pearson).—Plant of remarkably dwarf habit; very free-flowering; trusses large, the individual flowers also large and double, of a clear magenta scarlet; very effective. *No. 62* (Lemoine).—Plant of very vigorous habit; very free-flowering, the trusses and individual flowers large and full; flowers very clear salmon. Also to the Ivy-leaved Pelargonium *Anna Pfitzer* (Lemoine).—Plant of long trailing habit, free-flowering; leaves slightly zonate; flowers very large, semi-double, pink, slightly shaded with magenta, the top petals having distinct bands of purple; very distinct and pretty.

LANTANAS IN POTS.—First-class certificates:—*Reveil* (Lemoine).—Plant of very fine dwarf compact habit, remarkably free-flowering, the trusses of medium size, of a bright yellow colour; very fine. *Giselle* (Lemoine).—Plant of tall vigorous growth, very free-flowering, the trusses of medium size, composed of two colours, the upper part of the truss composed of florets of a pale saffron yellow shaded with pink, the remaining part of the flower very pale pink, with a slight shade of magenta; very pretty.

PENTSTEMONS.—First-class certificates:—*Jeanne d'Arc* (Lemoine).—Strong vigorous habit, very free-flowering; flowers large, pure white. A great acquisition. *Edison* (Lemoine).—Strong vigorous growth, very free-flowering, the individual flowers very large, beautiful dark purple, with very distinct white throat, slightly streaked with purple; very fine. *Marjolaine* (Lemoine).—Very strong habit, very free-flowering; individual flowers large, dark scarlet on upper side, and having a very distinct white throat; a good variety. *Begonia Queenie* (Royal Horticultural Society) received a similar honour. Plant of strong vigorous growth, very free-flowering; flowers large, and of a good form, of a beautiful magenta shaded pink; very fine.

The Fruit Committee (Harry J. Veitch, Esq., in the chair) examined the collections of Peas and Potatoes sent for trial, when the following awards were made:—

PEAS.—*Pride of the Market* (James Carter & Co.).—A dwarf blue wrinkled Marrow. First-class certificate. *Robert Fenn* (Hurst and Son).—A dwarf wrinkled Marrow. First-class certificate.

POTATOES.—*Cosmopolitan* (Dean).—A large early white kidney. First-class certificate. *Early Cluster* (Dean).—A half round early white Potato; very short haulm. Considered suitable for forcing. First-class certificate. *Lord Mayor* (Dean) was greatly approved, and ordered to be cooked and exhibited at South Kensington.

A POTATO GARDENER'S DILEMMA.—I have a large square of *Magnum Bonum* Potatoes in my garden which have been planted

far too close, the rows being only 2 feet apart. The haulm is at least 3 feet high and very dense. No sun can penetrate, and very few tubers seem to be forming. What must I do? Is it any use stopping the haulm and taking out a portion to let in the sun? There are at least six stalks to each plant. Might I cut out some and stop the others? I shall be glad to have the opinion of experienced cultivators of Potatoes on this point.—F. S.

CHOICE CAMPANULAS.

BELFLOWERS are such general favourites—from the humble but pretty native *Campanula rotundifolia* to the stately Canterbury Bells and the "steeple milkie Bellflower" of Gerard, or the pyramidal *Campanula* of botanists—that a few notes upon some distinct and rather uncommon forms will no doubt be welcomed by many readers. In a genus containing about two hundred species there might naturally be expected to be considerable variation in floral form and habit; such is the case with the Campanulas to some extent. As regards habit, there are numerous gradations—from plants of quite prostrate growth with diminutive flowers, to others 3 or 4 feet in height, erect, and stately, and bearing flowers like small cups. In form the flowers are open, resembling shallow funnels or saucers, or bell-shaped, of varying depth. Colours are, however, very slightly diversified, except so far as shades of purple and blue are concerned; those are, indeed, numerous, and white-flowered varieties are also known in many of the species. Scarcely any other departure from the normal tints is observable, unless it be in the direction of mauve or lilac.

As to what may be termed the cultural uses of Campanulas we find them suited for rockeries and borders outside, and for pots in greenhouses and conservatories, some few species being suited to either mode of cultivation, and others being specially adapted for one only. Some of the dwarf forms are particularly useful in pots as a margin to groups and the stages of houses, while the old "Chimney Campanula," *C. pyramidalis*, is so well known and generally appreciated for culture in pots as a really ornamental and effective plant, that it does not need comment. However, it is not my intention now to dilate upon the beauties and uses of the whole genus, which would only weary your readers and myself too; but, as stated at the commencement, to glance at a few of the less common.

Taking the dwarf species of Bellflower first we have several pretty forms represented in our gardens, amongst which one of the most attractive is *C. turbinata* (fig. 17, page 102), which was originally introduced from the mountains of Transylvania, where it is found growing at moderate elevations. It is of tufted habit, and is usually about 6 inches in height, or rarely exceeds 9 inches, the open bell-shaped bright blue flowers being very freely produced. As regards situation, the plant thrives either in well-drained borders or upon rockeries, though the latter position is better suited for it, and many little nooks may be rendered attractive by judicious planting. Another useful species is *C. carpatia*, which is noteworthy for the fact that it continues in flower for several months, frequently as late as September, and it is also adapted for rockery, borders, or pots. It is usually rather taller than the last-named, but is of compact growth; the flowers are marked by a very pleasing bright shade of blue. *C. pulla* (fig. 18), a charming little Austrian species, is now in excellent condition in those gardens where it is grown, and particularly notable is it on the rockery in the Royal Horticultural Society's Garden at Chiswick, where also most of the forms here described are well represented. The leaves of *C. pulla* are oval and smooth, the neat purplish blue bells being borne singly on the summit of the slender stems, and are slightly deflexed or nodding. This is one of the best for the rockery. *C. garganica*, *C. rupestris*, and *C. muralis* are all



Fig. 18.
Campanula pulla.

pretty and well worth growing wherever they can be accommodated.—X.

(To be continued.)

THE ROYAL SOUTHAMPTON HORTICULTURAL SHOW.

GRADUAL favourable progress is, in the general affairs of life, the surest, most substantial, and most satisfactory mode of advancement, and it seems that horticultural societies are no exception to the rule. Twenty years ago a few energetic and persevering horticulturists succeeded in establishing on a firm though modest basis, in the ancient city of Southampton, a Society which had for its chief object the encouragement of gardening in the locality. Difficulties had to be encountered, as is the case in every effort of the kind. Patrons, subscribers, and exhibitors had to be found, shows had to be inaugurated, and their occasional unavoidable want of success in a financial point of view combatted by further strenuous efforts, yet through all the Society has steadily made its way to a sound and high position amongst associations of the kind. The Exhibition held on Saturday and Monday last must have afforded such of the original projectors as were present an unbounded satisfaction at the admirable results that had been achieved by continuous ardent perseverance. Both in extent and quality the Show was undoubtedly one of the best which has been held in the provinces this season, and the advance in the number of exhibits since last year was remarkable. Two hundred additional entries represent not only a considerable total extension of the display of fruit, plants, and vegetables, but it also gives the best indication of success and promise of future prosperity, a greatly increased local and general interest in the Society's exhibitions.

The usual site was selected—namely, Westwood Park, an elevated and picturesque position north of the town, admirably suited for the purpose, but unfortunately, owing to the rapidly increasing value of the land for building purposes, it is extremely improbable that the Society will be able to obtain it another year. In view of this approaching difficulty a meeting is to be called (see page 106) on Wednesday next to consider the possibility of securing land that could be used as a garden and as a permanent site for the Exhibition. The necessary capital it is proposed to raise by the issue of shares. It is desirable that this project may receive substantial support, as if carried into execution in a judicious manner Southampton will obtain an additional attraction of considerable importance.

At the Show now under consideration five large marquees were fully occupied with the exhibits in the various and numerous classes. Three, each 60 or 70 yards in length, were placed side by side, and these contained the majority of the plants, groups, collections, and single specimens. Another of similar dimensions included the table decorations and bouquets, while the fifth was occupied with fruit, vegetables, and cut flowers. Most of the classes were well filled, and in some the competition was so keen that the Judges had no slight difficulty in determining the relative position of the exhibitors; indeed, the Judges seemed altogether rather hardly worked, and a little more assistance in that department would effect a great improvement. Most of the arrangements were satisfactory and creditable alike to the Committee, the Secretary, Mr. C. S. Fudge, and the enthusiastic Chairman of the Show Committee, Captain Gibbs. The following notes upon the chief classes will convey some idea of the extent and merit of the display.

STOVE AND GREENHOUSE PLANTS.—The most important class as regards the money value of the prizes was that for twelve stove and greenhouse plants, six in bloom, the first consisting of £20, subscribed by Southampton and county, the second and third being respectively £15 and £10. Three collections were staged, the chief honours being secured by Mr. E. Tudgey, gardener to T. F. G. Williams, Esq., Henwick Grange, Worcester, who contributed some of his magnificent specimens in their best condition. Among the most noteworthy was a magnificent *Pritchardia pacifica*, *Dipladenia amabilis*, well flowered and extremely brightly coloured; *Erica Parmentieri rosea*, 6 or 7 feet in diameter, globular in form, very healthy, and flowering freely; *Erica ampullacea* Williamsi, very beautiful; *Croton Queen Victoria*, good colour; with *Ixora Dixiana*, *Cordyline indivisa*, *Geonoma gracilis*, *Latania borbonica*, and *Anthurium Schertzerianum*, also noteworthy for their vigorous health. Mr. T. Cypher, Queen's Road, Cheltenham, was placed second with a handsome collection, in which a grandly coloured *Croton Disraeli*, *Allamanda nobilis* with very fine flowers, *Latania borbonica*, *Enccephalartos villosus*, and *Cordyline indivisa* of great size and in admirable health, were the principal features. Mr. C. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, followed, having gigantic examples of *Latania borbonica*, *Areca superba*, and *Cycas revoluta*; *Allamanda Wardleana*, *Gleichenia rupestris glaucescens*, *Croton variegatum*, and *Statice Gilberti* being also well represented. These three collections were very close in merit, all the plants being fine, and it required some careful consideration to determine the awards.

GROUPS.—Following the order of the schedule, the next class which requires notice was that for collections of plants arranged for effect as central conservatory groups in a space of 11 feet by 10 feet. The first prize, consisting of £6, was presented by the President of the

Society, Hans Sloane Stanley, Esq.; the second, third, and fourth prizes being respectively £4, £3, and £2. There were eight groups staged, all very similar in composition and nearly equally formal. They were of pyramidal form, the plants being closely placed, in some instances approaching to crowding; and if there was one portion of the Show that admitted of improvement it was in the class for groups, for though the plants were healthy and fresh the arrangement was not all that could be desired. Mr. E. Wills, gardener to Mrs. Pearce, The Firs, Bassett, was adjudged the premier position for a miscellaneous collection of fine-foliage and flowering plants in excellent condition, and not so crowded as in some of the other contributions. Mr. J. Kingsbury, nurseryman, Bevois Valley, was second with a bright and effective group. Mr. Philp and Mr. J. Amys, gardener to the Hon. Mrs. Eliot Yorke, Netley Fort, taking the third and fourth positions with collections varying chiefly in the number of flowering plants they contained.

COLLECTIONS OF PLANTS.—Four or five classes were devoted to collections of miscellaneous plants—that is, groups containing stated numbers of plants but not arranged for effect, the merit of the individual specimens alone being taken into consideration. For eighteen plants, not less than six in bloom, Mr. E. Wills was the chief prizetaker, staging some well-grown examples, among which the following were notable:—*Maranta roseo-picta*, very large, vigorous, and the foliage well coloured; *Alocasia metallica*, a handsome specimen over 6 feet in diameter, the peculiar metallic lustre of the foliage being superbly developed; *Alocasia Lowii* was similarly fine. *Dieffenbachia Bowmanni* and *Maranta Mackoyana* were also well represented. Mr. N. Blandford, gardener to Mrs. Haselfoot, Moor Hill, took the second position; a remarkably handsome globular-trained *Lasiandra macrantha*, a healthy well-flowered *Eucharis grandiflora*, *Dicksonia antarctica*, *Allamanda nerifolia*, *Dipladenia amabilis*, *Hibiscus Cooperi*, and *Croton Disraeli* being neat and fresh among others. The plants in this group, though generally smaller than the preceding, were characterised by a very creditable, clean, healthy appearance. Mr. J. Amys was third, having good examples of *Vinca alba*, *Lygodium scandens*, *Cycas revoluta*, and *Adiantum cuneatum*, the principal defect being a slight weakness in the flowering plants.

For fifteen miscellaneous plants Messrs. Jackson & Son, Kingston-on-Thames, were awarded the chief prize for the usual satisfactory specimens exhibited by this firm. *Stevensonia grandifolia*, *Allamanda Hendersoni*, *Erica Fairrieana*, *Phyllotænum Lindeni*, *Statice Butcheri*, and *Kalosanthes Dr. E. Regel* were all of considerable size, healthy, and effective. The *Kalosanthes* in particular was remarkably beautiful, the variety being one distinguished for the great size of flowers and truss and the strikingly rich colour; the specimen, too, was of even globular form, the trusses being very numerous. Mr. J. Kingsbury had neat specimens of *Begonia Weltoniensis*, *Justicia rosea*, *Begonia metallica*, and *Swainsonia galegifolia alba*, a pretty old papilionaceous plant that is not too frequently seen in gardens now. Messrs. Oakley & Watling, St. Mary's Road, were third with smaller but well-grown plants, the most noteworthy being one that is seldom staged at exhibitions—namely, *Posoqueria longiflora*, an ally of the *Bouvardias*, with long white flowers. Collections of nine plants were exhibited by Mr. E. Molyneux, gardener to W. H. Myers, Esq., Swanmore Park, Bishop's Waltham; and Mr. J. Burden, gardener to C. Y. Mercer, Esq., Hillfield, Bassett, who were first and second respectively, the latter having a very pretty example of the variegated Vine, *Vitis heterophylla variegata*. A class was provided for a collection of nursery stock to occupy a space of 16 feet by 3 feet, the pots not to be larger than 8 inches in diameter. Mr. J. Kingsbury was placed in the foremost position with a very large and diversified assortment of *Coluses*, *Pelargoniums*, *Lobelias*, *Fuchsias*, *Verbenas*, *Begonias*, and many other plants, some small specimens of the free-flowering *Begonia parviflora* being especially noteworthy. Messrs. Oakley & Watling were second, and Messrs. J. C. & H. Ransom, Hill Gardens, Hill Lane, third, each with healthy little plants.

Orchids were not largely represented, but the two exhibitors had some neat specimens. Mr. J. Osborn, gardener to H. C. Buchan, Esq., Wilton House, secured the chief honours with a good collection of healthy plants. *Cypripediums* were particularly well shown, the forms being *C. Parishii*, *C. Lowii*, *C. Stonei*, *C. Veitchii*, and *C. Dominionum*. *Oncidium Weltoni* and *O. dasystyle* were also noteworthy, with *Masdevallia bella* and *Epidendrum vitellinum majus*. Messrs. Jackson & Son followed, having *Dendrochilum filiforme*, *Saccolabium Blumei majus*, and *Disa grandiflora* in good condition among many others.

In the two classes for *Begonias* some well-flowered plants were staged, though the competition was not very keen. The Hon. Mrs. Eliot presented the first prize for eight *Begonias* in flower, and this was won by Mr. E. Wills, chiefly with tuberous varieties, the plants being healthy, and bearing a number of brightly coloured flowers. Mr. Blandford was a close second, the most noteworthy plant in his collection being a seedling tuberous variety named *White Beauty*, which had large white flowers, and appeared to be very free. For four *Begonias* Mr. J. Osborn carried off the chief prize with good plants of *Kallista*, *Emperor*, and *Vesuvius* among several unnamed seedlings; Mr. Burden taking the second place with smaller plants, but otherwise of good quality. *Fuchsias*, *Pelargoniums*, *Celosias*, *Achimenes*, and *Coleuses* also contributed to the display, the most successful exhibitors being Mr. Allen, gardener to J. Bailey, Esq., Elmfield Hill; Mr. Blandford, Mr. Molyneux; Mr. R. West, gardener

to R. Wigram, Esq., Northlands, Salisbury; Mr. G. Windebank, Mr. E. Wills, Mr. J. Burden, and Mr. Osborn.

Ferns.—Several classes were appropriated to Ferns, and some satisfactory specimens were contributed, though the collections were not numerous. For six stove or greenhouse Ferns Mr. E. Wills was the premier exhibitor, winning the first prize with the following:—*Nephrolepis davallioides furcans* was large, healthy, and handsome, the fronds with their curiously forked pinnæ being rich bright green in colour; *Davallia Mooreana* was in first-rate condition, also *Adiantum cardiochæna*, *A. concinnum latum*, *A. cuneatum*, and *Cibotium spectabile*. Mr. Hayes, gardener to H. Barlow, Esq., Oatlands, Shirley, had the best four Ferns, very neat examples of *Adiantum scutum*, *A. farleyense*, *A. pubescens*, and *Davallia Mooreana*. Messrs. Amys and Molyneux followed, the former having a healthy specimen of *Adiantum Sanctæ-Catherinæ*. Messrs. Jackson & Son were the only exhibitors in the other class for four, and obtained the first prize with well-grown plants, *Platynerium grande* and *Brainea insignis* being especially noticeable. Mr. E. Wills won chief honours for six hardy Ferns, comprising *Scolopendrium vulgare crispum*, *Lastrea Filix-mas cristata angusta*, *Struthiopteris japonica*, *Onoclea sensibilis*, and *Trichomanes radicans*, all fresh and healthy. Messrs. Jackson followed with similar plants.

Table Decorations and Cut Flowers.—In the class for the most tasteful table for six persons there were six competitors, who had arrangements varying greatly in style and merit. Mr. F. E. Chamberlain, Rose Villa, was adjudged the first prize for a table, which was noteworthy for the lightness and brightness of the general design and the neatness of the execution. The three central stands contained *Pelargoniums*, *Begonias*, *Carnations*, *Bougainvillea glabra*, and *Plumbago capensis*, with fronds of *Adiantum cuneatum* in sufficient abundance to tone the brightness of colour without imparting heaviness. The single glasses each contained a Rose bud, and the fruit comprised Peaches, Pears, Gooseberries, Apples, Plums, and Apricots. The second position was accorded to Mrs. Fuidge, 39, York Street, Avenue, for a graceful contribution, the central stands containing very choice flowers, grasses, and Fern fronds. Mrs. E. Wills, Bassett, and Mr. A. B. White were third and fourth respectively. Bouquets were numerous, the prizewinners being chiefly Messrs. Cypher; Wyatt, The Park, Sarum; and E. Hillier, Winchester. Among the cut flowers the principal classes were for Roses and Dahlias. Messrs. Keynes & Co., Salisbury, had the best twenty-four Rose blooms, very fresh, and of good quality; Mr. W. J. Cross, Salisbury, securing the second position in the same class. For twelve show Dahlias Messrs. Keynes were also first, staging handsome blooms of the following varieties—Professor Fawcett, Mr. Percy Wyndham, Christopher Ridley, Rosy Morn, Flora Wyatt, and several others. Messrs. C. Pay and Horsefield followed with smaller blooms.

FRUIT.—In point of numbers fruit was well represented, and the quality also was in most of the leading collections very satisfactory. The most important class was that for eight dishes, the first prize of five guineas being presented by the Southampton Tramways Company. This was secured by Mr. J. Ollerhead, gardener to Sir Henry Peek, Bart., Wimbledon Park, who had some well-finished and creditable examples. The varieties were the following: Grapes—Muscat of Alexandria, handsome bunches and berries; Black Hamburg, good-sized berries and bunches, excellently coloured; and two fine bunches of a white Grape said to be a seedling not in commerce. Pitmaston Orange Nectarines well ripened, Royal George Peaches, fine; Smooth Cayenne Pine Apple, Brunswick Figs, and Dumeaux's Improved Melon beautifully netted. Of the remaining four exhibitors Mr. F. Thomson, gardener to W. Baring, Esq., Norman Court, Dean, was awarded second honours for some good examples of Bigarreau Napoleon Cherries, Grosse Mignonne Peaches, Elruge Nectarines, White Marseilles Figs, and Cox's Golden Gem Melon. Mr. J. Budd, gardener to F. G. Dalgetty, Esq., Lockerby Hall, Romsey, and Mr. F. Thirlby, gardener to the Right Hon. Lord Mount Temple, Broadlands, Romsey, were third and fourth, both showing well. There were also five entries for six dishes, Mr. E. Molyneux winning leading honours with some remarkably handsome superbly finished Madresfield Court Grapes, large in berry and bunch. Read's Hybrid Melon was finely netted, and Violette Hâtive Peaches were also noteworthy. Mr. R. McMillan, gardener to Hans Sloane Stanley, Esq., Paultons, Romsey, was second with handsome Royal George Peaches amongst others; Mr. J. Horsefield, Heytesbury Park, Wilts, and Mr. T. Osborn being third and fourth.

Grapes.—There was good competition in these classes. For three bunches of black Grapes eight collections were staged. Mr. E. Molyneux was first with Madresfield Court Grapes, finely coloured; Mr. Horsefield second with Black Hamburg, medium size bunches, but well finished; and Mr. E. Hillier third with the same variety. Ten exhibitors appeared with three bunches of white Grapes, the prizes being secured by Mr. E. Molyneux with Muscat of Alexandria, excellent; Mr. Ollerhead with the same variety; and Mr. J. Hall, gardener to Captain Davison, South Stoneham House, with Cannon Hall Muscat, rather green, and Buckland Sweetwater, good colour. For a single bunch of Black Hamburg there were thirteen entries, the first prize being presented by Mr. W. Wildsmith, The Gardens, Heckfield. Mr. W. Sanders, gardener to J. East, Esq., Longstock House, Stockbridge, was first with good bunches, well coloured; Mr. Ollerhead a close second; Messrs. E. Hillier and J. Budd being third and fourth.

Peaches, Nectarines, and Melons were abundantly represented, especially the latter, the most successful competitors being Messrs. Rann, Molyneux, Thomson, Osborn, Budd, Thirlby, and Windebank. Melons were especially strongly shown, there being no less than twenty-three fruits staged in the two classes for a single green and scarlet-flesh variety respectively.

Apples, particularly the culinary varieties and other outdoor fruits, were also shown in great numbers.

VEGETABLES.—Like all the other sections of the schedule, the classes for vegetables were well filled, and the quality of the exhibits generally creditable to the growers. For twelve distinct varieties Mr. W. Sanders was a good first with clean, even, and substantial examples of Stamfordian Tomatoes, New Flanders Scarlet Carrots, Telephone Peas, Tender and True Cucumbers, and International Kidneys amongst others. Mr. Molyneux was a close second. There were fourteen exhibitors in the class for nine varieties of vegetables, Messrs. J. Allen, West, Amys, Pope, and Pay being the prizetakers in that order with well-grown specimens. For six varieties Captain Gibbs, Redthorn, Portwood, won the first prize with an excellent collection. Potatoes were also numerous and of good appearance, several other classes being similarly well filled. The cottagers' productions were very praiseworthy, and their contributions occupied considerable space in one of the marquees.

The miscellaneous exhibits did not constitute a remarkable feature in the display as regards numbers, but several interesting collections were staged. Messrs. Cannell & Son, Swanley, Kent, were the chief exhibitors, well deserving the certificate of merit awarded for their stands of Zinnias, Marigolds, Verbenas, Carnations, Picotees, Tuberous Begonias, and Pelargoniums, all of which were greatly admired. Messrs. Keynes & Co. had some stands of handsome Dahlia blooms; and Messrs. Elcombe & Son, Romsey, a fine group of Zonal Pelargoniums in pots.

Unfortunately the weather proved rather unfavourable upon the opening day of the Show, rain being frequent during the morning and afternoon, but notwithstanding that a very good company assembled; and with the attendance on the popular day, Monday, it is probable the Exhibition will prove as successful financially as it was from a horticultural point of view.

LETTUCE FOR WINTER SALADS.

I CAN fully endorse all that Mr. Iggulden has to say on this subject in his able contribution to last week's Journal, and think with him that it is necessary to maintain an abundant supply of Lettuce for that season of the year, which is in many establishments more important than the supply of Endive. The selection of varieties is a good one, but I may be permitted to ask why he has omitted from that list Tom Thumb, a variety I have hitherto found useful in every respect and of first-rate quality. It is an invaluable variety when late sowing has to be resorted to, as it turns in and hearts quickly.

Perhaps Mr. Iggulden gives preference to Suttons' Commodore Nutt, and has found that variety superior to Tom Thumb; if so, I shall be glad to know in what respects it differs and shows its superiority. I am anxious to obtain any good useful kind of superior quality for winter work, and any information pointing out the difference between the two varieties will be acceptable to—A GROWER OF SALADS.



THE number of visitors to the ROYAL HORTICULTURAL SOCIETY'S GARDEN at South Kensington, and the Medical and Sanitary Exhibition, on Bank Holiday, was 12,209.

— CRANSTON'S Nursery and Seed Company of Hereford have now an extensive and beautiful EXHIBITION OF ROSE BLOOMS AT REGENT'S PARK, a stage extending the whole length of the corridor leading to the conservatory being occupied with the boxes. About two thousand blooms are shown, representing most of the best varieties in commerce, and considering the late period of the season their freshness and quality are surprising. Indeed, some of the blooms would have taken a high position at any show this year. A box of the bright and beautiful Rose Mrs. Jowitt was especially noteworthy on Tuesday, the substance and colour of the blooms proving how well the variety merits the honours it has

obtained. The Exhibition will continue until the 9th inst., a large number of fresh blooms being brought from the Nursery daily to maintain the display.

— A CORRESPONDENT writes to us from Lincoln as follows—“‘LANCASHIRE’ in your last issue wants to know a SUITABLE SHRUB FOR A HEDGE in a smoky district. From personal experience of smoky localities I recommend a Yew hedge; we have two such, one 60 yards the other 200 yards long; and as to smoke, woe to the district that has more, and our hedges are thriving much better than can be expected, and, situated as we are on a hillside, high winds and gales are the order of the day.”

— A CORRESPONDENT sends the following note on MR. COOKSON'S COLLECTION OF ORCHIDS AT OAKWOOD HALL, WYLAM—“These have been considerably increased in numbers, with glass accommodation to hold them. The Orchids are placed on stone slabs for stages, covered with 2 or 3 inches of white gravel. The pots are all placed in other pots, which are again placed in saucers containing water, the object of which is to prevent the progress of insects. The following were in bloom—*Dendrobium Jenkensis* with six or seven flowers, *Thunia Marshallii* with six flowers open, and *Masdevallia bella*, besides *Phalanopsis*, *Vandas*, and *Saccolabiums*. There was a fine seed pod on *Odontoglossum Uro-Skinneri* which had been crossed with *Odontoglossum Chestertoni*.”

— AT THE WEST OF SCOTLAND PANSY SHOW which was held last week, in the competition open to nurserymen only Mr. W. Dickson, Paisley, secured first prize for twenty-four blooms of Show Pansies; and for a similar number of Fancy Pansies Messrs. Paul & Son, Paisley, were first. Mr. Storrie, in the amateurs' class, had the best eighteen blooms of Show Pansies; and Bailie Goodwin was first for twelve distinct varieties of Show Pansies. In the open competition for twenty-four Show Pansies Mr. Lyle came first with a splendid lot of beautifully shaped and clearly defined blooms. For twelve flowers of the same class Mr. Buchanan was first, and in the Fancy Pansy class Mr. Storrie carried off the honours. The best bloom Show Pansy in the Hall was exhibited by Mr. T. M. Croric, Kilbarchan. It is named “David Malcolm,” and was raised by Mr. Cuthbertson, Rothesay, last year, and since then it has received three certificates. The Pansy is a rich glossy black self, so smooth that the joining of the petals can scarcely be seen. It is of medium size, perfectly circular, with smooth overlapping petals of great substance, and a small orange eye with a halo of velvet. The top petals are velvety black, the lower petal shading to rich purple. In the confined classes Mr. Dalglish carried off all the first prizes, and for twelve bunches of *Violas* Messrs. Dickson & Co., Edinburgh, had the best exhibit.

— ROSES IN SCOTLAND.—The “North British Mail,” referring to the Roses at the above Show, states that “The Tea Roses shown by Mr. Gray, Dunkeld, were universally admired; some of the best authorities on the subject asserted that they were the finest blooms ever grown in Scotland. His stand included *Mdlle. Van Houtte*, *Souvenir d'un Ami*, *Alba Rosea*, *Madame Willermoz*, and other equally choice Roses. For the best Rose bloom in the Hall, Mr. Wallace came first with an excellently grown specimen of *Pierre Notting*. The feature of the Show, however, was probably the stands of Roses exhibited by Messrs. A. Dickson and Sons, Newtonards, and Mr. Hugh Dickson, Belfast. In the principal class, the competition for forty-eight Roses, distinct varieties, Messrs. A. Dickson & Sons were first, and in the next class, for twenty-four, Mr. Hugh Dickson was first.”

— AN EXHIBITION AND CONGRESS in connection with the CULTURE OF VINES is appointed to take place in Milan in September next. The Congress, which will be composed of experts from

various countries, will be charged with the duty of inquiring into the subject of the disease which has of late years rendered the wine crop so uncertain. The Exhibition will consist mainly of appliances for the application to vegetation of insect-destroying agencies, of machines and instruments for grafting, of photographs, plates, and printed publications relative to the Vine disease, specimens of Vine parasites, and numerous other objects serving similar purposes.

— WE are requested to announce a special general meeting of the members of the ROYAL SOUTHAMPTON HORTICULTURAL SOCIETY will be held at the Kell Memorial Hall, Bellevue Road, on Wednesday, August 10th, at eight o'clock in the evening, when General Lacy will propose the following resolution, by the authority of the Provisional Council:—That the great difficulty the Committee has experienced this year in securing an eligible site for the Summer Exhibition, a difficulty which it is feared will be almost insurmountable in the future, showing the immediate necessity for securing a site for the proposed gardens; and having promises to the extent of over £3000, of which £2300 is promised in writing, the Council are hereby authorised to incorporate the Royal Southampton Horticultural Society forthwith, under the Limited Liability Companies Acts, upon the following basis:—1, That the memorandum of association shall contain a proviso securing to annual subscribers all the privileges of admission to the shows at present enjoyed by them. 2, That the nominal capital of the Society shall be £10,000 in 10,000 £1 shares. That the first issue shall be 5000 shares. 3, That the contract with Sir Edward Hulse for the lease of the proposed site in Bannister's Park shall not be signed until the first calls upon not less than 3000 shares are paid into the Society's bank. 4, That of the first £3000 subscribed, £1500 shall be invested as a reserve fund, and the remainder expended in enclosing and partially laying out the site. 5, That all additional capital subscribed of the first issue shall be equally divided between the reserve fund and the expenses for completing the gardens. 6, That no outlay for glass structures shall be incurred until the whole of the first issue has been subscribed. Persons desirous of assisting the proposed Company are requested to communicate with the undersigned. Subscriptions are invited towards the expenses of promotion.—W. Lacy, Major-General, *Chairman*, The Polygon; C. S. Fuidge, *Secretary*. Office, 39, York Street, Lower Avenue, Southampton.

— A CORRESPONDENT has obliged us with a report of the STIRLING HORTICULTURAL SOCIETY'S SHOW, which, however, arrived too late for insertion, and we are only able to publish a condensed note of it. In many respects the Exhibition, which opened on the 26th ult., was a very good one, but the arrangements appear to have been very faulty. “By the time the Judges ought to have been proceeding with their work most of the tables were still to erect, and one of the tents was only partially erected. Indeed the arrangements were not wholly completed at all the first day. The consequence was that the Judges performed their duties under very trying conditions—the Grapes, for instance, having to be judged three times and the awards as often altered before the decisions were finally given. Notwithstanding this the awards were very satisfactory, except in the fruit classes, where the Judges' awards were by no means generally approved.” The collections of plants arranged for effect are described as forming “ridges 8 or 9 feet high in the centre, sloping like a house roof to nothing at the sides, and as evenly and densely filled with as many plants as could possibly be crushed in.” Mr. Thomas Boyd, Callander House, Falkirk; Mr. Russell, Keir House; and Mr. John Robertson, Springbank, Stirling, received the prizes. For specimen plants Mr. Souza was first with magnificent examples, Mr. Russell, Keir, having the same position for six fine-foliage plants. Roses were good from Mr. Alex. Hill Grey, East Ferry, Dunkeld;

Mr. A. Kirk, gardener to J. T. Thomson, Esq., Norwood, Tilli-coultry; and Mr. James Dick, Kippen. Mr. T. Lowe had the premier award for a collection of twelve kinds of fruit, and Mr. T. Boyd for eight dishes of hardy fruits. The show of vegetables was extensive and the samples very fine, especially the first-prize collection of twelve kinds from Mr. J. Souza.

— REFERRING to the disease known as the **YELLOWS IN PEACHES**, which has been stated to have been caused by Bacteria, the "American Prairie Farmer" states:—"The true cause is diminished vitality of the trees, which invites the Bacteria. Potash, potash salts, the potash derived from ammonia, common salt, and soda salts, and the salts and sulphates of iron and manganese, appear to be the tonics and stimulants best adapted to strengthen the vital forces of the trees, giving them the strength to ward off these deadly parasites. But parasite is not a good name for Bacteria, for parasites generally prey on living organisms, but do not destroy the life, while Bacteria destroy life in all parts that they occupy. We had an idea that thorough investigation might find a medication of some kind that the tree would absorb in its tissues, that would be a specific poison to Bacteria and not to the tissues of the tree; but further investigation leaves us little hope that this is possible, for Bacteria are found to be the hardest of all forms of life to destroy. Very few of the most virulent and deadly mineral or vegetable poisons have any effect on them; they can withstand extreme heat and cold, and it is scarcely reasonable to suppose that we will be able to find anything that will destroy their life without at the same time destroying the life of the tissue occupied by them." Our American friends might try Keel's blight destroyer, which is said to be a specific for all the diseases of the Peach. It is applied with a vapouriser, and is sold by Mr. Alfred Howes of Walcot Parade, Bath. We have found the application efficacious as applied to plants attacked with insects, but have no unclean or unhealthy Peach trees on which to try the effects of the preparation.

— THE report of the Select Committee appointed to inquire into the assessment of **EXTRAORDINARY TITHE**, is an ample justification of the strong complaints which have been made by agriculturists against the imposition of this additional charge on their land and its produce. The impost originated under the Tithe Commutation Act of 1836, which empowered the Commissioners to make Hop gardens, market gardens, and orchards into separate districts, on which an extra assessment was to be levied. This distinction was based on the plea that the produce of garden and orchard land is more profitable than that of ordinary arable land. If a district producing Hops, fruit, or vegetables is converted into corn land the extraordinary tithe ceases; and when land previously devoted to grain or pasture is cultivated for Hops or gardens the extraordinary charge begins to run. The practical objections to this system are obvious. The ordinary tithe is merely a charge on the land, while the extraordinary tithe is a charge on production. It is easy to see that land which would return a good rate of interest if devoted to the growth of garden produce, is very likely to be left to the less profitable cultivation of corn and other field crops by the dread of the augmented tax, which thus cramps the energies of agriculturists. Then, again, hardships are unavoidably created in certain cases owing to the difficulty of drawing a distinction between agricultural and garden produce. Some crops, such as Potatoes, Cabbages, Peas, and Beetroot, are classed both as field and garden produce, and in some parts of Scotland even Strawberries are regarded as field crops. The difficulty of drawing a clear line between the two has given rise to considerable litigation at times, and it is one of the grievances of farmers that they have been compelled to pay extraordinary tithe for land which is not devoted to market garden purposes. The general effect of the operation of this

increased assessment is recognised by the Special Committee as mischievous, and by way of remedy they recommend that no new districts shall hereafter be created. They also suggest schemes for commuting or reducing the obnoxious burden wherever it now exists. There can be little doubt that the adoption of these proposals would largely encourage the growth of market garden produce in this country, which is now checked by the tax on production. Agriculturists are deterred from turning their arable land into garden ground by the increased assessment of tithe to which the latter is subject, and the result is that we have to import every year some five or six millions sterling worth of produce, much of which we could grow for ourselves if agriculturists were not handicapped by a tax on production as well as on land. The Committee propose a substantial measure of relief, which is called for alike in the interest of producers and consumers.

CROTONS AT AIGBURTH.

IN the extremely neat and well-furnished nurseries of Messrs. R. P. Ker & Son at Aigburth, near Liverpool, the Crotons command attention by their free growth and bright colours. They are grown in a very simple manner, and are decidedly imposing. It does not appear to be the practice to stop the plants, but to let them assume a natural habit, growing tall or branching according to the nature of the variety. Generous culture is given, and the size and colour of the leaves show that the plants are in competent hands. A specimen of *C. Disraeli* is no doubt one of the finest in the country—a well-furnished and informal pyramid 6 or 7 feet high, well coloured, and in fine condition. Mr. Williams' new spiral-leaved variety, *C. Warreni*, is in superb health and rich colour; it is quite unique by its gracefully arching leaves, which are long, narrow, and twisted with the regularity of a corkscrew. The proprietors have reason to be proud of this beautiful plant, and no doubt they are.

A pair of plants of *C. Prince of Wales* admirably show the decorative value of the variety when well grown. These plants are about 6 feet high and have never been stopped. They have produced no side branches, but form straight columns of foliage from the pot to the golden weeping crown that forms the summit of each plant. Even the leaves that were attached to the cuttings are as fresh as ever. For various purposes of decoration such plants as these possess great value, and could not be equalled by plants that have been stopped. *C. Evansianus* is equally remarkable. It is simply a straight stem more than 6 feet high, with fine and richly coloured leaves from the soil upwards. It is a picturesque and brilliant column that would tell with great advantage in a group arranged for effect, or similar plants would be fine for staircases and halls that are occasionally desired to be furnished with valuable plants. *C. Victoria* is remarkable by its vigour and its large rich foliage, and, grown as the plants are, every leaf is seen to advantage. *C. Princess of Wales* contrasts effectively by its cream-coloured foliage, and grown unchecked is very elegant; and of the still lighter and new *C. Hawkeri* there is one of the finest plants we have seen. This variety branches naturally, and forms a beautiful object by the transparency of its leaves. It is the best of all Crotons for room and table decoration under artificial light, and for this purpose will probably be extensively grown. *C. Hanburyanus* has imposing foliage, but does not colour so early as some others; it is a noble form for autumn, when its colours are the brightest.

There are a great number of others, including most of the newer varieties in cultivation, but one at least may be noticed, as it is not generally known. It is a new form distributed by Messrs. Ireland & Thomson, named *C. interruptus aureus*—not a happy name, as it has no resemblance whatever to *C. interruptus*. The new variety is of slender growth, after the manner of the old *C. angustifolius*, but is brighter than that bright and useful old form, and its habit is all that can be desired. It forms a perfect pyramid in a small state without being pinched, and a large specimen must be very imposing. This is likely to prove one of the finest of table plants—at least during the daytime, yellow not showing under artificial light, and it will be valuable for general decorative purposes. It was certificated at Liverpool two years ago.

There is a good general collection of plants in this nursery, but the Crotons are of special excellence and highly creditable to the cultivators.—VISITOR.

OLEARIA HAASTII.—I have this beautiful shrub in full bloom. It is one mass of flowers of a delicate creamy white, which are

agreeably fragrant; and being much admired I have thought it well to draw the attention of others towards it, as it has not been long introduced into this country, yet sufficiently so to try the hardiness of its constitution. With me it stood against the full force of a north-easterly wind that blew for weeks, killing and injuring many old-established trees around, and yet not a leaf was turned brown. *Viburnum Awafurkii* was one of the first to go in the same position, though I have one plant left and doing well in a sheltered corner. The Loquat, too, is alive, though sadly crippled.—HARRISON WEIR.

CLERODENDRONS AT DRAYTON MANOR.

HAVING seen the small plants of *Clerodendron Balfourianum* referred to by Mr. Thomas on page 81, I can bear testimony to their usefulness and great decorative value. By this simple mode of culture this beautiful plant can be grown by many who have only small houses at their disposal, as there is no need for training the growths to wires near the glass, nor for securing them to balloon trellises, which occupy much space. When the plants are from 6 to 9 inches high they are simply stopped, and as fast as further growths form they are kept pinched to a leaf, the same as Peach trees are pinched for bearing on the spur system. Eventually clusters of flower buds form, and when the *Clerodendrons* flower they resemble in character dwarf *Hydrangeas*, but are far more beautiful. There is little doubt that others will try the pinching plan that has been recommended, and a valuable addition to early summer-flowering decorative plants will be the result. Plants such as those grown at Drayton Manor would sell well in Covent Garden Market.

There is much more that is noticeable at Drayton Manor and its 75 acres of pleasure grounds, noble walks, grand terraces, fine Conifers, and splendid avenues of *Araucarias*, *Pinus excelsa*, and Irish Yews. The glaucous form of *Cedrus atlantica* is superb, and ought to be in all collections. *Larix Kämpferi* is about 9 feet high and through; and there are hundreds of fine examples of various Conifers, and splendid masses of Golden Yews tastefully grouped; but the *Araucaria* avenue, backed with a line of the Douglas Yew, is the feature of the grounds. The glass structures are extensive, and include a remarkably fine range of vineries, the rafters being of iron, and the sashbars of copper. The Grapes are also fine, a late house having a splendid crop, the early varieties being cut. Rich surface dressings and copious supplies of water—in a word, plenty of healthy roots and plenty of food, are the elements of success. Peaches, Figs, Plums, and Pears are largely grown under glass, and the kitchen garden is in a high state of fertility and profitably cropped. Weeks's tubular boilers are much liked by Mr. Thomas, one to which 3000 feet of piping is attached having worked satisfactorily for thirty years. It must have been one of the first that was made; it has just been new bottomed, and is commencing another term of work. There are very good plant houses erected by Mr. Gray, and a fine octagonal domed conservatory, which is an attractive adjunct of the mansion. All these and more merit attention; but after all nothing was more striking, because novel and effective, than the dwarf *Clerodendrons* above referred to, and Mr. Thomas has done well to make his simple and easy mode of culture known.—A TRAVELLER.

SINGLE v. DOUBLE FLOWERS.

THERE is much that is worth noting and remembering in both the articles contributed by "SINGLE-HANDED," but as there is some little difference of opinion between him and myself, it will be as well to explain my views more fully. This I will do by referring to some of what I have proved to be really useful flowers, and your readers can then judge for themselves.

The Pansy has already had a decision in its favour. Roses have not come off quite so well. I admire and use wild Roses; at the same time I should not prefer a bunch of wild Roses to one composed of open and unopened buds of *Maréchal Niel*, *Safrano*, *Niphetos*, *Général Jacqueminot*, *Coupe d'Hebe*, and *Cabbage* Roses, though I certainly would not object to the wild variety being associated with the others. Need I remind your correspondent that "Dahlias and Hollyhocks and a host of other prim, double, artificially formed flowers," is a rather loosely worded definition? Single Dahlias are well represented in gardens. Single Hollyhocks are not in the least likely to rival the double forms, for the simple reason that they are not nearly so effective. I do not know any more effective plant than the Hollyhock for late flowering. Why should we examine everything closely?

Though Hollyhocks are not particularly beautiful under close inspection, then "let distance lend enchantment to the view." As to the "host" of other double flowers, does that mean every double form, or does "SINGLE-HANDED" make reservations? I readily grant that many double flowers are unattractive. For instance, a double Fuchsia, a double Petunia, a double *Pelargonium*, or a double *Campanula*, are not improvements on the single forms; but these do not necessarily decide the question. In a previous communication I named some wild flowers the double forms of which I thought prettier than the single. I now ask if your correspondent would expel Mule Pinks, common double Pinks, laced Pinks, Picotees, Clove Carnations, and florists' Carnations from gardens, and substitute single forms in their places? Would he place double Stocks, Asters, Marigolds, Peonies, Wallflowers, Zinnias, Primulas, Azaleas, and Camellias in the background, and substitute single forms for them? If so, for what reason? Certainly not because the single forms are more beautiful, nor even because they are more useful for various purposes of decoration.

With regard to wild flowers contrasted with those that are cultivated, let us consider of what "SINGLE-HANDED" tells us his bouquet was composed. If instead of the Ox-eye Daisy we substitute *Eucharis*, or the old *Pancratium speciosum* instead of the Woodruff, *Rogiera cordata*, white *Bouvardia*, white Heath or *Rhynchospermum*; and *Odontoglossum Alexandræ*, *O. cirrhosum*, *O. Pescatorei*, or *Stephanotis* in place of Gueldre Rose, should we spoil our bouquet? If for yellow, *Alstroemeria*, *Masdevallia Davisii*, *Lonicera japonica*, or *Aquilegia chrysantha* were employed, should we be destitute of taste? Amongst wild Forget-me-nots only one is worth cutting, and that is *M. sylvatica*, and amongst wayside Veronicas only one is showy—namely, *V. Chamædrys*; but place either *V. rupestris* or *V. verbenacea* beside it, and see how this pretty wayside flower must yield the palm to its cultivated congeners. I would commend the double forms of the wild Geranium as superior by far to the singles for garden plants. Then the reds are a really poor selection. Why, the rose variety of the common Milfoil is far superior to any of them, and so is the dark variety of *Centranthus ruber*. But if you pass these by and employ in the bouquet some red Rose buds, sprays of Zonal *Pelargoniums*, single flowers of *Epidendrum vitellinum*, or *Ixora* flowers, what a different effect is produced!

With "SINGLE-HANDED'S" remarks about florists' flowers I cannot agree. We have certain standards of beauty in form in architecture and kindred arts, in the animal kingdom and in the vegetable kingdom, and the forms which are condemned as being in bad taste are in all cases recognised as standards of beauty. We simply cannot help ourselves in this matter. Even "SINGLE-HANDED," when picking his bouquet, has selected the perfectly circular Horse-gowan to head his list, the largest and roundest of the Starworts, the common Buttercup, Forget-me-nots, two of the largest and roundest Geraniums, and red Clover—actually approaching the model of the double flower. What would your correspondent make as the standard of beauty in flowers? If we take a Geranium with three or five pips to a truss, and with pips a quarter of an inch in diameter, shall we let it remain so? or may we improve (?) it to a certain extent in size, in roundness, and in the number of flowers? If so, where shall we stop? Take the Phlox; shall we return to the starry *P. pyramidalis*, and consign the newest varieties to the rubbish heap? Or the Gladiolus, shall we again grow the varieties which held sway before Berthe Rabourdin appeared? The true lover of flowers sees beauty in all—the wild Rose and the cultivated, the wayside annual and the exotic.—R. P. BROTHERSTON.

[With this communication Mr. Brotherston sent us a huge bouquet of hardy flowers, some double, some single; all are equally beautiful, and excellent examples of cultivation.—ED.]

RENANTHERA LOWII.

ONE of the most remarkable members of a large and interesting family of plants is the superb Orchid *Renanthera*, or *Vanda*, Lowii, which is well known, at least by name, to most growers who make a speciality of these plants. Not that it is at all common, for on the contrary it is extremely rare, but because a few large specimens included in some amateur and trade collections have flowered at various times, and, being described, have attracted the attention not only of orchidists but of plant-growers generally. Some, too, have been exhibited occasionally, and these have served to still further extend the fame of the plant both as regards its beauty and peculiarity. Still, however, it is by no means frequently in flower, and quite a sensation is yet created amongst Orchid lovers by the announcement that an example can be seen in that condition. Such, indeed, was the result of Mr.

B. S. Williams's intimation that he had his handsome specimen in flower, and in consequence the Orchid house containing it at Holloway has been entered by many interested visitors during the past week, and doubtless many more will yet have an opportunity of seeing it, as the plant appears likely to continue in flower for several weeks. All that have the opportunity will certainly not regret the time spent, for the Orchid is in fine condition, and perhaps few better displays of flowers have been produced—in England at all events. Of course we can never hope to rival such specimens as have been found attached to the trunks

of trees in its native home—Borneo. Reliable travellers have stated this *Renanthera* is so vigorous that sometimes examples have been observed with two hundred branches, each bearing two to four spikes of flowers 10 or 12 feet long, thus bearing collectively several thousands of flowers. British Orchid growers can afford to be content with less extraordinary results than these; but even in our dull climate, and under the artificial conditions imposed by cultivation in glass houses, the plant is found to be when healthy remarkably strong-growing, and, as an experienced orchidologist has remarked, it appears to disdain our attempts to

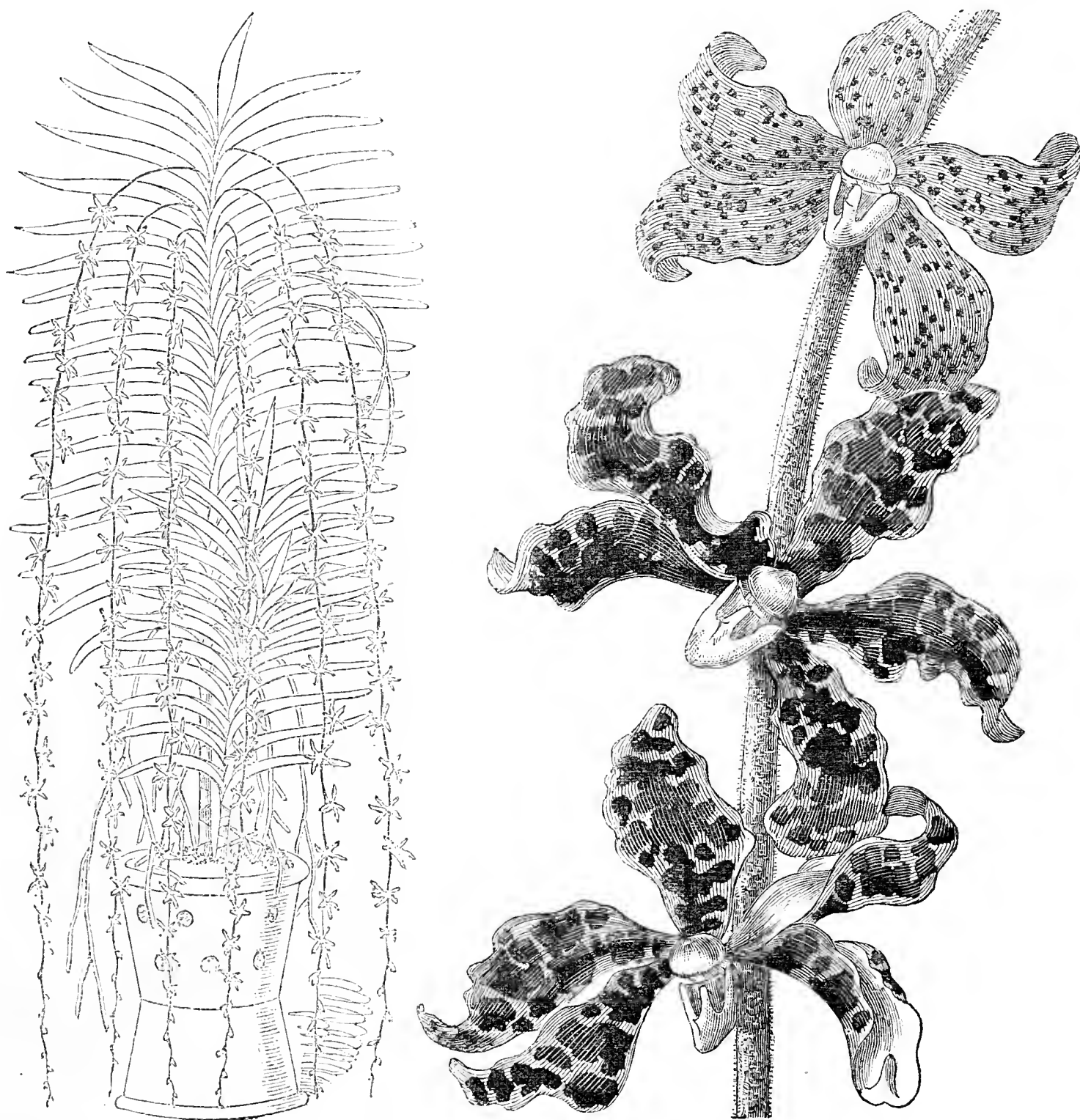


Fig. 19.—*RENANTHERA LOWII*.

limit it to the moderate extent of ordinary Orchid houses in this country. Even when not flowering it has a noble appearance, and seems to occupy a regal position among the *Vandas*, to which it is closely related both structurally and in general superficial characters.

The genus *Renanthera* is not a large one, and it is chiefly separated from *Vanda* by some slight differences in the mode the lip is attached to the column; in other respects, especially in the growth and leaves, there is a striking similarity between the best-known forms of each genus—indeed, the one now specially referred to here, *R. Lowii*, was originally described by Lindley as a

Vanda, and it was not until better materials had been submitted to Reichenbach that it was allocated to its present position in the Orchid family. Mr. Hugh Low, when holding the post of Colonial Treasurer at Labuan about 1846–7, was fortunate enough to discover specimens of the plant, some of which he succeeded in forwarding to England then or a short time subsequently. Some years, however, elapsed before flowers were produced, and I believe that the honour of having been the first to flower the plant in England rests with Mr. Pilcher, who had charge of the celebrated Ruckerian collection of Orchids at Wandsworth. It seems strange that twelve years should have elapsed from the time the

plant was made known until living flowers were seen, and yet that appears to have been the case, for it was in the autumn of 1862 that Mr. Rucker's gardener succeeded in gratifying not only his employer but a small world of Orchid lovers and growers. Since then, however, similar results have been produced in various collections. A year or two since a fine example was flowering at Ferrières, Baron Rothschild's noted estate in France, and one spike, it is said, was over 9 feet long. A few have also been shown at the chief metropolitan exhibitions.

The Holloway specimen, of which the woodcut (fig. 19) is a representation, is growing in a large pot with perforated sides, and from the top of the compost of charcoal, potsherds, and sphagnum moss the height of the plant is 6 feet. From the axils of contiguous leaves near the summit of the stem six pendulous spikes have been produced, the largest being 7 feet 3 inches in length, and bears thirty-one flowers with several buds not yet expanded. The total number of flowers and buds upon the plant is 194. All the flowers, except two or three at the base of each spike, have the petals and sepals alike, being burred and blotched with deep reddish brown upon a yellow ground, and when the plant is sufficiently elevated to enable this colouring to be seen to the best advantage it is very striking. The two or three mentioned above as differing from the other flowers are very remarkable. They have slightly broader petals and sepals, the ground colour being an orange yellow marked with small purplish or crimson dots. These flowers are invariably found at the base of the spikes produced by *Renanthera Lowii*, and they have occasioned much comment amongst botanists and others. It has been thought to be similar to the dimorphism observed in other Orchids that have one form of flower in which the pollinia only is produced, or perfect, and the other with a stigma but defective in the pollinia, thus approaching the monœcious state amongst other plants; indeed, it has been generally accepted as such, but an eminent authority, having subjected the flowers to a careful examination, states that there is no appreciable difference in the structure of the two sets of flowers produced by the *Renanthera*. One interesting observation has, however, been made—namely, that the basal flowers have a much stronger and more pleasant odour than the others, and this may have some bearing upon the subject. At all events the matter should be of sufficient interest to induce those growers who have the opportunity to make some careful observations with a view to determining it.

Another species of *Renanthera*—viz., *R. coccinea*, may not unfittingly be referred to, as it is the oldest known form of the genus in cultivation. It is also very beautiful, and is scarcely less noteworthy than its remarkable relative. It is a native of Cochin China, and was first brought into notice at the close of the last century by the writings of a missionary named Loureiro and several other travellers. It is said to be cultivated in China, where it is grown in baskets and employed for decorating rooms, being suspended from the ceilings. The sight of some specimens in flower in such positions induced certain writers to characterise it as the most handsome of plants; but though undoubtedly attractive in a high degree, it is scarcely entitled to such unqualified praise. The flowers are borne in spreading panicles, not in spikes like *R. Lowii*, the sepals being narrow spotted with orange-scarlet; the petals are broader, of a reddish-orange hue without any markings. A plant of this species first flowered at Claremont in 1827. *R. matutina* is a small-flowered form, very distinct from the others but pretty, the blooms being yellow spotted with crimson, and produced in great numbers upon panicles like the last-named. It has been found in Java and the Philippines.

Regarding the dimorphism of Orchids, the *Cynoches Warscewiczii* shown last year at Kensington was an admirable example, and one of the most strongly marked I am acquainted with. Some *Catasetums* and allied genera exhibit similar peculiarities.—L. CASTLE.

NEWCASTLE FLOWER SHOW.

THE summer Show of the Newcastle Horticultural and Botanical Society was held in the Leazes Park on the 27th, 28th, and 29th ult., and was by far the best the Society has ever held as regards both the number and high quality of the exhibits. The Society this year are making some new departures from their former system by holding no autumn exhibition. This, no doubt, may be attributed to the circumstance that in the Town Hall there is not room to hold sufficient people to make the shows "pay." This is the more to be regretted, as the autumn exhibitions have generally been exceedingly good. However, it behoves the directorate to make every effort to surmount their financial difficulties, and place the Society on a firmer footing. On the first day of the summer Show under notice the weather was very fine; the second day it rained heavily towards evening, which, we fear, must have reduced the takings by some hundreds of pounds,

but upwards of twelve thousand visitors attended the Exhibition on the opening day.

The Exhibition was held in a series of tents arranged side by side with their sides opened, thus forming a pavilion of flowers, &c., about 90 yards by 50. The sides were neatly edged with crimson, giving a fine effect to the whole. We will now refer to the exhibits according to their arrangement in the schedule. For eight plants in bloom, dissimilar, £26 and the Knightian medal were provided, the first prize being £12. This was won by Mr. Cypher, Cheltenham, his plants consisting of a fine *Clerodendron Balfourianum* over 6 feet high and densely covered with flowers, *Ixora Fraseri* well flowered, *Erica tricolor Kingscottiana* over 5 feet through, *Allamandas Hendersoni* and *grandiflora*, a fresh *Dipladenia amabilis*, and three other *Ericas* completed the collection, which was of remarkable merit. Mr. E. H. Letts, gardener to the Earl of Zetland, Upleatham, was second with an excellent-flowered *Stephanotis floribunda*, *Anthurium Schertzerianum* with forty flowers, *Ericas insignis* and *ampullacea*, all of great excellence. Mr. E. Tudgey, gardener to T. F. G. Williams, Esq., Henwick Grange, Worcester, was third with a very fine group of plants. In the class for eight foliage plants there were six competitors. The plants attracted much attention, and formed one of the strongest features of the Show. Mr. Letts was first with remarkable specimens of *Crotons majesticus* and *Johannis*, both finely coloured, and the leaves of great size; *Dasyllirion acrotrichum* was splendid; *Encephalartos Vroomi* was superb—supposed to be one of the finest specimens in England—*Gleichenia rupestris glaucescens* was over 9 feet through. Altogether they were a majestic lot, and well worthy of the premier honours. Mr. Hammond, gardener to Sir Wilfrid Lawson, Bart., Brayton Manor, was second with good specimens of *Croton majesticus*, *Dasyllirion glaucum*, *Latania borbonica*, and a capital *Cycas revoluta*. Mr. Cypher was third, *Croton Johannis* being very fine, as also was *Gleichenia rupestris*.

For groups of miscellaneous plants there were seven competitors, Mr. Hammond being first with a most effective arrangement, the charm of which consisted principally in an absence of packing. At the base of each tall plant small Ferns and flowering plants were grouped. *Acalyphas* well coloured were used with great effect. Mr. Noble, gardener to Theo. Fry, Esq., Woodburn, Darlington, was second with a very effective group; Mr. Thompson, nurseryman, Fenham, Newcastle, being third. Many of the other groups contained fine flowering plants, but were defective in arrangement.

Two collections of Orchids only were staged. Mr. Cypher was placed first with a good plant of *Cattleya crispa*, *Odontoglossum vexillarium* with five spikes and thirty-six blooms, and *Saccolabium Blumei* three spikes.

Ferns were not so numerous as usual, Mr. Noble being first in the principal class, followed by Mr. Hammond, both of whom showed excellent specimens. For three *Crotons* Messrs. McIntyre, Hammond, and Black were successful in the order named. *Dracænas* and Tuberous-rooted *Begonias* were well shown, Mr. Hammond being the most successful exhibitor. Mr. Letts had the first prize for *Ericas*. Pans of bedding plants, alpine or rock plants, and hardy succulent plants, dissimilar, were very good; Mr. Larke, gardener to the Rev. R. F. Wheeler, Whitley Vicarage, securing the first prizes in each class. These collections were much admired by visitors, and formed a pleasing feature of the Show.

ROSES.—Competition in the Rose classes has always been encouraged by the Society, and the display was unusually fine. The exhibitions of previous years have generally been too early for north country growers; however, this year they have had a much better chance. The Roses shown by Mr. Whitwell, Barton Hall, Darlington; Messrs. Mack & Son, Catterick Bridge; and Mr. Jos. Watson, Fenham Nurseries, were extremely fine considering the extraordinary winter and spring there has been in the north. For forty-eight Roses, not less than twenty-four varieties, Messrs. Cranston, nurserymen, Hereford, were first with extraordinary blooms of Charles Lefebvre, Comtesse de Serenye, Mrs. Jowitt, Madame Sophie Fropot, Mdle. Marguerite D'Ombraïn, Emilie Hausburg, Louis Van Houtte, Marie Finger, John Stuart Mill, Marie Rady, Mdle. Marie Verdier, and Exposition de Brie. Messrs. Mack were second with very good blooms of Alfred Colomb, Marie Baumann, Baronne de Rothschild, and Mons. E. Y. Teas; Mr. Jowitt, Hereford, securing third honours. Six collections were staged. For thirty-six Roses, not less than eighteen varieties, Messrs. Cranston were again first, the stand containing superior blooms of Mrs. Jowitt (a new Rose of a deep crimson scarlet shade of colour), Pierre Notting, Jean Liabaud, Madame Thérèse Levet, Fisher Holmes, Alfred Colomb, Baronne de Rothschild, Duke of Edinburgh, and Madame Chas. Wood. Mr. Whitwell was an excellent second with fine examples of La France, Reynolds Hole, Dupuy Jamain, Madame Berard, Emilie Hausburg, Marie Baumann, Comtesse de Serenye, Leopold I., and Thomas Mills. For twelve Roses of any variety Messrs. Cranston were first with Mrs. Jowitt. For twelve Tea-scented Roses Messrs. Mack & Son were deservedly first with charming blooms of Souvenir d'un Ami, Madame Berard, Belle Lyonnaise, Maréchal Niel, Madame Hippolyte Jamain, Niphotos, and Jean Ducher; Messrs. Cranston securing the second prize.

TABLE DECORATIONS.—These are generally of a superior character at the Society's shows, and we have seen them much better, and also the prizes much more severely contested for than on this occasion. For the most tastefully decorated table Mr. M. Thompson, gardener to Lindsay Wood, Esq., South Hill, was first with a very effective

arrangement. Mrs. Gellender, Grey Street, Newcastle, was second; and Mr. Whiting, gardener to Mr. Walker, Shot Tower, third. Table plants were very good, Mr. Hammond, Mr. Whiting, and Mr. Cypher being placed respectively in the order of merit. Mr. Hammond's plants consisted of *Cocos Weddelliana*, *Croton angustifolius*, *Grevillea robusta*, *Croton Sunset*, *Pandanus Veitchii*, and *Croton nobilis*. Epergnes, basket of cut flowers, bridal bouquets, hand bouquets, and buttonholes were shown, the latter embracing thirty entries. Of the above the first prizewinners were Messrs. Cypher, Larke, and J. Battensby.

FRUIT.—The fruit was decidedly superior to that staged at any summer exhibition the Society has held, and was nearly, if not quite, equal to the displays at the autumn shows, which have been admittedly amongst the best in the provinces. For a collection of eight dishes of fruit the sum of £15 was divided into four prizes, besides for the first the bronze Knightian medal. Five collections were staged. Mr. Mann, gardener to Mrs. Hornsby, St. Vincent's, Grantham, was first with superior dishes of fruit. He had a Queen Pine (3 lbs.), capital bunches of Black Hamburgh and Muscat of Alexandria Grapes, from 3 to 4 lbs. weight; the berries were large, finely coloured, and evenly shaped. Pitmaston Orange Nectarines, Dr. Hogg Peaches, Brown Turkey Figs, a large Eastnor Castle Melon, and Black Tartarian Cherries. Mr. Edmonds, gardener to the Duke of St. Albans, Bestwood Lodge, was second with good Black Hamburgh and Muscat of Alexandria Grapes, Royal George Peaches, Elruge Nectarines, and a good Queen Pine; Mr. Ingram, Alnwick Castle, being third. For four dishes of fruit, Pines excluded, there were ten entries. Mr. A. Mackie, gardener to J. R. M. Plews, Esq., The Woodlands, Darlington, was first with Black Hamburgh Grapes. Elruge Nectarines, Noblesse Peaches, and a Queen Emma Melon, all very good. Mr. Johnson, gardener to H. Nimmo, Esq., Castle Eden, was second; and Mr. Ingram being third, both staging meritorious collections. Many of the other collections contained excellent fruit, Mr. Jowsey of Ledbury Park having very fine Grapes, Pine Apple, and Peaches. Two Pine Apples only were staged, Mr. Ingram being first, followed by Mr. Letts. For four bunches of Grapes, not less than two varieties, Mr. Hammond was first with admirably finished berries of Black Hamburgh and Buckland Sweetwater. Mr. Jowsey was second, and Messrs. Mavin & Son, Whitley, third. In the other principal Grape classes Messrs. Mavin, Harwood, and Hammond were the winners of the first prizes. The produce was excellent, and the competition keen. Melons were numerous shown, Messrs. Thorburn and Mann being respectively first in the classes for green and scarlet-fleshed kinds. Thirteen dishes of Peaches were staged. Mr. J. H. Clayton, Grimston Park, Tadcaster, was first, Mr. McIntyre second, and Mr. H. A. Mann third, all staging superior fruit. There were also thirteen dishes of Nectarines, which were also very good. Figs, Cherries, and Strawberries were exceedingly good, the latter being large in size and of excellent colour. The best variety was Sir Joseph Paxton, shown by Mr. Fister, gardener to Mrs. Joicey, Blenkinsopp Hall. Excellent dishes of Tomatoes were shown by Mrs. McIntyre. Seventeen brace of Cucumbers were staged, Mr. Ingram being first with Telegraph.

The above refers to what is called the A Division, and consists of nurserymen's and open classes. The B Division is for the products of local gardeners and amateurs. In the class for six plants in bloom Mr. E. Adams, Swalwell, an amateur, was deservedly first, and secured the first silver Banksian medal with creditable plants of *Phœnocomia prolifera Barnesii*, and a fine plant of *Kalosanthes coccinea* with sixty trusses of flower—a plant that is rarely well shown at Newcastle; of Ericas he had in superb condition *ferruginea major* and *Turnbullii*. Mr. Noble was second with a good *Lapageria rosea* and *Erica retorta major*. Mr. Battensby was an excellent third; his plant of *Ixora Williamsii* was perhaps the best of its kind in the Show, having over sixty trusses. Foliage plants were also good in this class, Mr. E. Tudgey securing the first position with *Cycas revoluta*, *Cocos Weddelliana*, *Dicksonia antarctica*, *Areca lutescens* with three fine stems, *Pritchardia pacifica*, and *Cycas Normanbyana*. Mr. Hammond was a close second, having *Phoenix pectinata*, *Croton Disraeli*, and *Chamærops humilis tomentosa* in fine condition. There was great competition in the class for six Ferns, Mr. Noble being first with superior specimens of *Gleichenia rupestris glaucescens*, *Cibotium regale*, *Thamnopteris australasica*, *Gleichenia Mendelli*, and *Microlepia hirta cristata*. Mr. C. Crossland, Oakfield House, was second. British Ferns were very good. Mr. J. B. Robson, Newcastle, securing premier honours, with Mr. N. Black second. Mr. Methven was first with Ericas, followed by Mr. Letts. Zonal Pelargoniums, Coleuses, table plants, and Fuchsias were numerous, the prize plants of the latter from Mr. Deighton, Gateshead, a working man, were very fine and highly creditable to the exhibitor.

Cut flowers were good in this section of the Show. For twenty-four Roses Mr. E. R. Whitwell was first, his most striking blooms being *Emilie Hausburg*, *Marie Baumann*, *Baronne de Rothschild*, *Alfred Colomb*, *Duchesse de Vallombrosa*, *Madame Lacharme*, and *Reynolds Hole*, all of which were splendid. Mr. T. Jowitt was second. For twelve Roses Mr. Jowitt was first. Bridal and hand bouquets and epergnes were fairly good, Messrs. Rutherford, M. Larke, and C. W. Baynes taking the principal honours. Herbaceous flowers were, as usual, strongly competed for, Mr. Battensby being first with a fine stand; Mr. W. H. Wilson, Gilesgate, Durham, second.

The C Division is confined to amateurs only, which means in the

north anyone who does not employ a professional gardener. Many of the exhibitors are only working men, and it was gratifying to see such excellent productions in every department. Messrs. Battensby, Adams, Morris, Deighton, Atkinson, Lambert, and Oliphant contributed principally to this section of the Show.

Several valuable groups of plants, &c., were sent not for competition. Mr. B. S. Williams, Upper Holloway, London, exhibited a most valuable and diversified group, including Orchids, fine-foliaged plants, and Ferns; *Dendrobium formosum giganteum* and *Agapanthus umbellatus alba* were much admired. Messrs. J. Robson and Son, Hexham, had a collection of Coniferæ; Messrs. Wm. Fell and Co., Hexham, also contributed Coniferæ, consisting of many new varieties, also a fine collection of rock and alpine plants; Messrs. Finney, Newcastle, natural Grasses and seeds; Mr. Jos. Watson, Fenham, rock plants and Coniferæ; Mr. W. H. Hilton, unbreakable hand-painted flower-pot covers; Mr. J. Mackenzie a new *Lobelia* named *Compacta Bella*, which was certificated; Mr. Wm. Tweddle a tray of wild fruit; Mr. J. Crossling, Newcastle, ferneries; Mr. G. T. Reed, lawn mowers; and Messrs. Dinning & Cooke, Newcastle, their patent hot-water apparatus.

The day's proceedings, we were informed, were brought to a close by the Committee and their friends, the principal exhibitors, the Judges, the High Sheriff of Newcastle, several Town Councillors, and a deputation from the York Floral Society, dining together. After dinner some discussion ensued relative to the encouragement the Committee have received from the Town Council. Hitherto that body has charged them £40 for the use of the Park, but this year they have allowed them to have it for £60.

The Committee and Secretary were active, as usual, in rendering the Show complete and making it enjoyable to all.

SHADING CAMELLIAS.

MR. MUIR has, no doubt, full justification for his remarks on this question as founded on his own practice; yet, nevertheless, it is not wise to write dogmatically on the subject and assert that Camellias do not need shading. In all probability my experience with Camellias is as great as that of your correspondent, and my means of observation greater, as I have inspected plants in nearly every county of England, and in many instances have found that shading was essential, even when the cultivators of the plants had endeavoured to relinquish the practice and regretted its necessity.

Very much depends on the district in which Camellias are grown, and more probably on the glass that is used, as to whether the plants need shading or not. In a limestone district the plants, as a rule, must be shaded. Why this is so I can scarcely tell, but can vouch for the fact, as I also can for red spider being more prevalent in some localities than others, while I cannot exactly state the "reason why."

I have just inspected one of the finest collections of Camellias in the kingdom. The specimens are such, both as to form and vigour, that it would not be easy to excel, and I have certainly not seen any in Wales to equal them. There are larger specimens in Wales, but few, I think, more handsome, and none, I feel confident, more healthy. It is a fact that the plants to which I refer could not be in the splendid condition they are if shading was not resorted to. They are in the charge of a gardener who ranks amongst the highest in the profession, and is one of the last men who would adopt a practice that could be dispensed with. He is not a mere imitator of other men's practice, but rather a leader in his vocation. It is necessary to state this, or your correspondent might fancy the Camellias are in incompetent hands. On the contrary, they are in the charge of a skilled cultivator, who finds that shade for the plants is imperative.

No doubt there are cases where Camellias are shaded more than is necessary, but to assert they do not need shading at all is to go to the other extreme, and extremes are proverbially unsafe.

Mr. Muir says in his case the foliage has "attained a rich, dark glossy green colour, which might have been looked for in vain in the shade." No doubt this is quite true as limited to the plants in his case; but if he intends his remark to be of general application I join issue with him, and submit that growths equally rich, glossy, and in all respects satisfactory, can be produced from plants that have been judiciously shaded. I am prepared to have examples sent to the Editor for comparison with the best that can be produced from unshaded plants, with the view of testing the point as to whether shading is in all cases a fallacy in the culture of Camellias.—NOMAD.

DAY'S EARLY SUNRISE PEA.—Are there two varieties of the above Pea in commerce? I am induced to ask the question from the remarks on page 79 of your last issue, where one of your corre-

spondents says it has haulm 5 feet high, and another that it has nine or ten peas in a pod.—G. S., *Sandbeck Park*.

CHAPTERS ON INSECTS FOR GARDENERS.—No. 26. NEW SERIES.

IN previous articles that have been comprehended in this series some account has been given of the galls produced upon trees and plants by various two-winged and four-winged flies. Many of the larger galls serve as homes or resorts for more than one species of insect, and the concluding page in the history of most that are left undisturbed is their demolition by small parties of Acari or mites, though some escape for a long time, as for example the well-known oak-gall (fig. 20). This, the marble or Devonshire gall, is the work of *Cynips Kollari*, a four-winged fly, and rightful occupier while a grub of the central hole, into which, however, parasites occasionally intrude and devour it before it is mature. In addition to these we also find in the galls what are called the "inquilines," or fellow-lodgers. Their abodes are scattered throughout the substance of the gall. To obtain the insects within these galls titmice and other birds drive holes in them, and the effect of the weather so softens them ultimately that mites can break them up and feast on their contents.

But we have also a group of mites that are actually the producers of galls, and to a moderate extent several species are found to be not merely disfigurers—they check growth or develop an unhealthy action in the plants they attack. So doubtful was their history during the early years of scientific research, that not a few of our naturalists were led to regard the galls caused by mites as simply instances of fungoid or other vegetable growths induced by the state of the air. With ordinary galls there is seldom any difficulty, when a number are examined, in detecting the tenants or some traces of them; but the tiny, and occasionally almost transparent, mites escaped observation until the experiment was

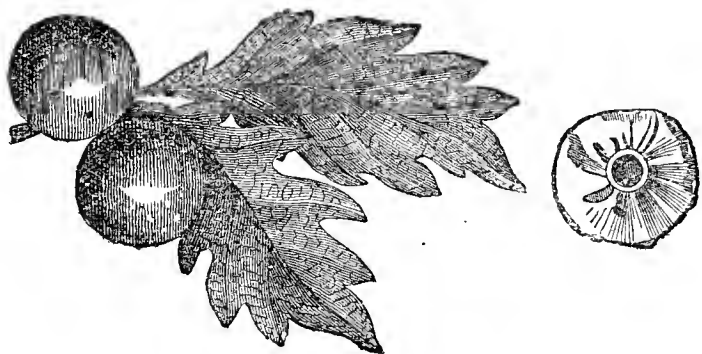


Fig. 20.—Oak Galls.

made of soaking the galls in water and examining the solution. Most persons have noticed at some time or other upon the leaves of the Lime numerous little projections that from their shape have received the name of "nail-galls," and in which, when they are cut open, we perceive nothing but a crowd of minute vegetable hairs. Reaumur, one of the highly honoured entomologists of France, saw these a century and a half ago, and he presumed that insects had to do with them; after a good while he found some. From his description, however, these must have been creatures preying upon the mites. It was not until the year 1851 that the producers of these nail-galls were detected by M. Dujardin, and the species was named *Phytoptus Tiliæ*; it is one of those that are semi-transparent.

It is not necessary to describe fully the habits of the *Phytoptidæ* or gall-mites, but it may be stated that they live usually in colonies composed of both larvæ and mature mites, the larvæ in some species having only four legs. The head of the mature insect is hardly distinguishable from its body. It is furnished with short thick palpi, and the legs appear to be not only clawed at the tips, they have also beside the hard claw a moveable soft one, or sucker. Yet it is curious that these mites are not particularly fond of locomotion. "They waggle about in an aimless way, turned from their path by any obstacle, such as meeting one of themselves," writes Mr. Murray, who has been so fortunate as to see some crawling about; and yet, for all that, they manage to spread themselves over a whole tree or an entire hedge. For although they will infest the same plant year after year if not meddled with, they also appear in new localities. And here is a puzzle: What becomes of the gall-mites that infest buds when there are no buds for them to consume—i.e., during the greater part of the year? They vanish from the plants, and no one can say where they go; but they re-appear sure enough in their

proper season. The *Phytoptidæ* (as might be supposed) occurring within buds are principally injurious. They do not form distinct galls like the leaf-infesting species; they give to the whole bud a rounded puffy aspect, the leaflets within look "raw," and eventually the bud decays and drops. Nor is the result by any means salutary to the plant. We have never been able to perceive these with the unassisted eye; with a good hand-magnifier they may be observed, even if they are quiescent. *P. taxi*, described in the *Gardeners' Chronicle* with doubt as a *Tetranychus* or a spinning mite in 1875, was perceived by Professor Thistleton Dyer to be doing damage amongst the Yew hedges about London, the buds appearing as if they were frost-bitten. In Europe species have been found upon the Hazel and the Peach which at present have not occurred in England. The most familiar example of a bud-mite is *P. ribis*, which has occurred upon the Currant throughout Britain, being, however, more common in Scotland than in England. Hundreds of mites are congregated in a single bud, and each one that is touched shrivels up, perhaps the branch also dies off. Mr. Murray, concluding that the mites are lodged about the buds late in autumn, advises close pruning as an effective check.

The gall of the Lime has been already referred to; still more conspicuous is the gall that occurs upon the Sycamore, which is always red or purple. The Lime nail-gall is mostly reddish at one period, fading into brown. *P. aceris* develops these Sycamore galls, and also, probably, the crowded hairy galls usual on the under side of Maple leaves. The Pear has its special mite foe in *P. pyri*, an insect which, it may be, prefers a warmish temperature, since its prevalence on the Continent is greater than in England. It is chiefly on the young leaves that the Pear mite shows itself, covering them with unpleasant-looking blotches, at first pale red, afterwards black. In the swellings are minute holes, either made by the older mites for the purpose of exit, or else made by a parasite enemy of the mites. Upon the Plum, produced by *P. pruni*, galls are commonly noticeable; these appear on both sides of the leaf, rounded like purses or little bags, occasionally club-shaped. White hairs frequently grow outside these galls, the interior being full of hairs, as is usual. Foreign observers have discovered more than one species upon the Apple; these, though unnoticed here, may occur with us. In these instances of fruit trees thus affected no actual injury is done by the mites. A special interest belongs to a gall-mite taken upon the Vine, named *Phyllerium vitis*, because its effects seem by some gardeners to have been ascribed to the work of the *Phylloxera*. This mite develops warty spots or patches on the under side of the leaves, and it is very difficult to discover. Botanists, indeed, for a long while supposed insects had nothing to do with these patches. What have been called "the clusters" of the Ash have now been proved to be morbid growths by myriads of a gall-mite, glossy in appearance, and excessively small. The parts attacked are the styles of the flower, which increase to a monstrous size, turning a greenish or blackish brown. The "clusters" are dotted with hairs on the upper side, and they become very hard; there is no hollow within them. Passing over many others, we can only add that a species of *Phytoptus* visits the Strawberry, making its home in galls which arise from its punctures. These are short, very hairy, and purplish, set thickly together in the leaves.—J. R. S. C.

THE ART OF COLOURING GRAPES.

It is pitiable to see Grapes which are fine in every other way—large and regular in berry, beautiful in form, and large in size of bunch—yet lacking that all-important point of excellence, good colour, and consequent good flavour. It is possible to have good colour without good flavour, inasmuch as colour under good cultivation will come first, but it is not possible to have good flavour without good colour. I do not say that Grapes should be all either black or yellow; there are some of the best flavoured varieties which will not, under any system of cultivation, approach either of these colours, and are therefore not so much grown as their merits would warrant; but when we see, as all of us who attend exhibitions do see every year, red Grapes conspicuously labelled Black Hamburg, and Muscat of Alexandria as green as a Leek, we may be sure there is something wrong either in the culture or nomenclature. At local shows especially, judges have an unthankful office to perform when size is pitted against finish, and of course everybody is on the side of the giants. At the larger shows, in consequence of a greater number of persons attending who know what a bunch of Grapes should be, and there being amongst the crowd a certain amount of confidence in the great men who are supposed to act as censors on such occasions, the task of judging is not so thankless.

In the case of Muscats at the early summer exhibitions we must, I suppose, be content to see them green, for they have never to my knowledge been shown otherwise, and I think it is a pity they should be invited at all before the end of July. But Hamburgs are just as easy to colour in April as in September. They are not, perhaps so easy for everybody to grow in the winter months as they are in the summer, but any person having grown them at any time of the year, and brought them in good condition through the stage of stoning, the question of colouring is then merely a matter of air and light acting on a good supply of healthy foliage; and I should not be afraid to say that if a house of Hamburgs were given over to me at this stage in a moderately healthy condition as to foliage, that I could ensure the colouring of all such berries as would not shank. The process would be a very simple one. I should first take great care that the quantity of fruit was not in excess of the capabilities of the foliage. There can be no rule laid down for this, as one good substantial leaf in full sunlight is worth more than a dozen flimsy ones which are partially shaded. What would be a heavy crop for one Vine where the plants are close together might be a light crop for another where more space is allowed. Next I should see that the border was never dry, and lastly that the house was never without ventilation unless for an hour or two when a cold spell of wintry weather came on suddenly.

A minimum temperature of 65°, with a rise of 80° by sun heat if the fruit has to be hurried in ripening, and all the air continually that these conditions will allow without admitting a cold draught or necessitating too much hard firing, is the treatment recommended. The colouring cannot take place without a constant change of air. The colder the outside temperature the smaller of course must be the aperture for ventilation, and in frosty or rough weather sufficient air will often enter through the laps of the glass during nights and dull days; but this constant stream of fresh air till we find some better method at this particular stage is an imperative necessity. When Grapes of the Hamburg class are not forced, and there is no necessity to hurry them, the simplest way to ensure colouring is to leave them open night and day. There is far too much opening and closing of ventilators with most of us.

The thick-skinned Grapes, such as Lady Downe's and Alicante, which are intended to be kept through the winter for use in February, March, April, and May, require a higher temperature at this stage than is necessary for Hamburgs, and they will do with a less amount of ventilation when once the stoning process is over. The colouring of this class of Grapes should commence at the end of July or the first week in August, and a minimum of not less than 65° should be kept for two months afterwards. If a little ventilation can be allowed all night so much the better, but it is an absolute necessity to have some before the temperature rises in the morning.

Muscats, to colour them well, require similar treatment to the thick-skinned varieties, but there is this difference between them—all black Grapes will colour without direct sunlight on the fruit, but the Muscat of Alexandria and its allies of the same colour will not; they must therefore be trained wider apart, and if necessary the leaves where they shade the bunches must be tied back. I think, too, that no class of Grapes better pays for an extension of growth beyond the bunch than this; 6 feet apart is near enough for the rods, and the growths should be allowed to meet, but not to overlap or become crowded.—WM. TAYLOR.



HARDY FRUIT GARDEN.

APRICOTS, although they promise to be of excellent quality, are very scarce. Plums on trees trained to walls are rapidly swelling; indeed some of the early kinds, such as July Green Gage, St. Etienne, and De Montfort—three of the best dessert Plums preceding Green Gage—are nearly ripe. Early Rivers in the open is in an advanced stage for ripening. This is an excellent early culinary Plum, and one of the most certain croppers. Keep the leading shoots of wall trees closely nailed in or tied, continuing to remove or stop superfluous or fore-right shoots, so as to admit light and air to the principal shoots and secure the thorough ripening of the wood. Treat Vines against walls in a similar manner, so as to admit the sun and air freely to the fruit, which should be kept rather close to the wall, and the berries on

each bunch carefully thinned out. Examine ripening fruit, such as Apricots, Peaches and Nectarines, and remove them before they fall from the trees, the fruit being benefited than otherwise by keeping them a day or two in an airy fruit room before being sent to table. Such fruits as Cherries, Gooseberries, Strawberries, &c., should not be gathered until they are required. Protect Morello Cherries from birds. Net a sufficient number of bushes of Red Warrington or other late Gooseberries, also Red and White Currants, to preserve the fruit to a late period. Mats, though often employed, are very unsuitable, as they exclude air and light; hexagon netting is most suitable for the purpose, the fruit not being deteriorated in flavour as when covered with mats. Runners of Strawberries may be potted as they can be obtained for forming new plantations or forcing. Spare no effort to keep down weeds in the open quarters or elsewhere by surface-hoeing in the spaces between the trees.

FRUIT HOUSES.

Peaches and Nectarines.—The full exposure of the foliage to the influence of sun and air is of the greatest importance in the cultivation of these, and indeed all fruit trees. This is necessary from the commencement of growth, with a proper admission of air, so as to secure the solidification of the wood and thick-textured or leathery leaves, which are more proof against insect attacks and less susceptible of damage from adverse atmospheric conditions than attenuated wood and foliage. As soon, therefore, as the fruit is gathered no time should be lost in cutting out wood on which the current year's crop was borne; and where there is any approach to overcrowding the shoots should be well thinned. To maintain the foliage in a healthy condition syringe forcibly, so as to subdue red spider and preserve the foliage healthy. If there be any scale apply an insecticide. The border also must be kept in a thoroughly moist condition, and an occasional application of tepid liquid manure will assist weakly trees to plump the flower buds. The lights should be continued over the trees, air being admitted day and night until the buds are developed, when it will be advantageous to remove the roof lights.

FLOWER GARDEN.

Where there is an abundant supply of water, and it has been used liberally along with mulching the surface of the beds, the plants are now making an effective display and should be frequently examined, removing faded flowers and bad foliage. Carpet beds will need attention in pinching and pegging. Propagation will soon have to be commenced, beginning with Tricolor, Bronze, and variegated Pelargoniums, for if deferred until late in the season they do not root freely on account of their succulent growth. Three cuttings may be inserted in a 3-inch pot, and placed where they will have protection from heavy rains, but otherwise fully exposed to sun and air. When the variegated kinds are in, a commencement should be made with the green-leaved varieties. It being undesirable to commence cutting the plants directly they commence filling the beds, a reserve garden from which cuttings can be taken without interfering with the beds is a valuable adjunct where numbers of bedding plants are required. Stock plants being kept of Alternantheras, Coleus, and Iresines, cuttings should at once be taken; they strike freely in a cold frame kept close and shaded from sun, and when established should be moved to a house where there is a temperature of not less than 55°. Verbenas, Petunias, Lobelias, and Ageratums strike freely at this season in a cold frame kept close and shaded, hardening them well off so as to have strong established plants by the autumn, as such winter more satisfactorily than those struck later in the season in heat. See that border plants have the needful support in staking and tying, also Hollyhocks and Dahlias, as well as the taller-growing subtropical plants, giving those abundant supplies of liquid manure in dry weather. Pipings of Pinks may still be inserted, and any that are rooted planted out where they are intended to bloom. Proceed at once with the layering of Carnations and Picotees, and sow seed in pans or boxes. The summer bloom of Roses being over or nearly so, cut in all straggling shoots, and give every encouragement to the plants to make young wood for autumn flowering. Cuttings of ripe wood inserted now will strike freely in sandy soil under handlights, kept close and shaded until rooted. We prefer them on their own roots for massing, especially where the soil

is light, in which with liberal treatment they succeed capitally. Clematises and Tropæolums require training, keeping the growths evenly disposed. The Clematises are now in great beauty, and never look so well as when trailing on stumps, rockeries, or trellises.

PLANT HOUSES.

Stove.—*Toxicophlæa spectabilis* deserves extensive cultivation for its agreeable odour, and the white flowers are produced freely in corymbs from the points and the axils of the leaves, not unlike an *Ixora*. It does well in pots or planted out, answering well in sandy peat for pots, and does not need a great amount of root space. *Hoya bella* is one of the most beautiful flowers, and for bouquets or buttonholes it is unrivalled. It does exceedingly well as a basket plant grown in sandy peat. It does not require a great deal of root space, care being taken not to overwater. *Æschynanthus* in baskets, or in pots placed in baskets lined with moss, must not be allowed to want for water, or they will probably cast their flowers, but an excess of water causing the soil to become sodden will have a similar effect. In late summer and autumn they are very effective. Gardenias struck in spring and grown for winter flowering should be shifted into 8 or 10-inch pots, not allowing them to become root-bound before they are shifted into the above-sized flowering pots, so as to have them well established before autumn. Early-flowered Gloxinias should be gradually dried off, but not by withholding water altogether, allowing sufficient to insure a gradual rest. Early-sown seedlings should be given 5 or 6-inch pots, and if grown near the glass, with shade only from bright sun, they will make a fine display in early autumn. Winter-flowering Gesneras, such as *G. exoniensis*, *G. zebrina*, and *G. zebrina splendens*, should have light positions, so as to secure a sturdy growth, feeding them occasionally with weak liquid manure. All winter-flowering plants should be encouraged to make firm sturdy growth, exposing the plants to all the sun and light possible, as they require all the stored-up sap good cultivation can afford to flower well in the dark winter months. *Euphorbia jacquiniæflora* is naturally of a straggling habit, which in some measure may be obviated by stopping; but it must not be practised too late, or the growth will be puny. The last stopping should now be given, and the plants encouraged by keeping them near the glass in a genial atmosphere and temperature. Afford liquid manure to *Allamandas* that have been in flower some time, also to *Bougainvillea glabra* and *Clerodendron Balfourianum* that have been rested, again placed in heat and moisture, and which are advancing for late flowering.

Orchids.—The nights are now becoming colder, and any cleaning or repairs needed by the heating apparatus should at once be attended to. The East India house may range from 75° to 85° by day, with an average of 65° at night, the *Cattleya* house about 5° less. Continue the same general treatment to the occupants of the East India house. Shading on the *Cattleya* house should be almost, if not entirely, dispensed with, doing so only when the sun is very bright, but be careful not to make a change suddenly. *Cattleyas* making their growth should receive all possible encouragement. Early-flowering plants have completed their growths, and should be moved to a cooler house, where the moisture is less and more air can be afforded. *Dendrobiums nobile*, *Cambridgeanum*, and many others should be placed where they will receive the full sun and light to ripen them properly. Shading will no longer be necessary for *Calanthes Veitchi* and *vestita*, but they should be watered liberally at the roots for some weeks longer. Fumigate frequently to keep thrips under, and sponge the leaves of those infested with scale with a strong softsoap solution, and afterwards wash them with tepid clear rain water.



WOODEN FOUNDATION.

EVERYONE who has had anything to do, even the slightest, with scientific bee-keeping must be convinced of the value to bees and bee-masters of comb foundation. Personally I am disposed to

endorse Messrs. Abbott's view that, now comb foundation is so good, so strong and perfect, and at the same time so moderate in price, it is doubtful whether true economy is not best shown by not using combs a second time. There is something about the foundation that the bees appear to like, and they exclaim like the guest at the feast, whose silence obtained for him the character of being exceedingly clever till the apple dumplings were too much for his gravity, and he burst out with, "Them be the jockeys for me!" It appears to me that the bees express, doubtlessly in better grammar, similar sentiments. I placed a bar with some comb in one hive, and in another a bar with an inch of wax foundation in two pieces (part yellow, part white). In twenty-four hours I removed both; the comb appeared scarcely touched by the bees, but the foundation was built on "all along the line;" and, what very much surprised me (a young hand and very ignorant), the bees had built up yellow cells on the yellow foundation and white on the white! How could they tell the difference and manage this? It seems to me that the midrib is the difficult point of manufacture to our industrious little workers, but when this is provided they lay on the cells at express power.

I have seen wooden foundation vaunted as preventing sagging, and being stronger, &c. Accordingly I invested in some and tried six frames. It appeared a first-rate article, and when fitted to the frames the latter were certainly as strong as possible. I expected grand success. Great, however, was my dismay on the first time of opening (they were placed in different hives) to find the first pair that happened to be next each other glued together, the comb being built irregularly and attached to both wood foundations. The bars could not be removed without a rupture and the falling of a large piece of comb. Then I found much uncovered—in fact, if the wax had been at all interfered with, here the bees had left it bare, but then to make amends, and determined, as is their wont, to economise space, they had built out the next comb to fill up the space—a great evil, as the comb becomes so heavy that in hot weather it breaks off, and sad havoc and loss ensue. Still more surprising, I found that though the wax was worker cells on the wooden foundation, they disregarded it and built drone comb over, and on the irregularly built cells they set to and built out some pieces of perfect two-sided comb with central portion and cells, both sides sealed complete on one side of the wood; in fact it seems to me that they are tempted by it to all sorts of vagaries. Of the twelve faces that these six sheets have I have only seen one at all even and respectable, and this was not built over all the face; in fact, the bees evidently do not like some portions of it. I cannot recommend it, and, with the present beautiful wax foundation, for general purposes it appears perfectly unnecessary. Lastly, it seems to me to yield its contents to the extractor with difficulty.—Y. B. A. Z.

THE BRITISH BEE-KEEPERS' ASSOCIATION AT SOUTH KENSINGTON.

THE seventh Exhibition of this Association, which opened in the gardens of the Royal Horticultural Society on Tuesday in last week, has been rather conspicuous for the quantity and excellence of the honey than for evidences of progress amongst appliances. The total entries numbered 274, while the attendances have been on the whole satisfactory, and the interest in the subject evidently growing. In Class 2 the Carniolian bees were very distinct. This variety, though sombre in hue, should be encouraged, since they are good workers, not persistent swarmers, and extremely mild in temper. Observatory hives brought out one or two impracticable novelties, and we were glad to see that the mistake was not repeated of giving prizes where large flight space involving wholesale death to the bees was a necessary part of the construction. Mr. Holland showed a pretty and ingenious observatory, which at present partly involves this indicated defect, which without difficulty he could remedy. Mr. Scott showed a hive in which the frames fit together, but have glass between the combs. These can be independently lifted for observation. In our opinion the old form of observatory, in which the combs are visible constantly and without interference, yet remains to be excelled.

The judging of the next four classes has failed to give general satisfaction, and several weighty opinions are pronounced against it. Mr. Griffin took first honour in Class 4 for the most complete hive. The leading feature of his exhibit was a series of chaff-packed slabs which fit in between the bees and the hive side; but since 1 inch of cork dust placed permanently between the hive sides would afford at least four times as much protection as these slabs, we hardly see the reason for incurring their cost and of augmenting the size of the hive so immensely in order to give them accommodation. The body is well made and the frames move on thick

brass runners. These would of course maintain their form better than zinc, but they would cause loss of heat by conduction when the hive is contracted in winter, since half their length would be outside, while they would give more opportunity for propolisation. Mr. Abbott was second with the now well-known combination hive, to which he adds dummies with side pieces held against the hive walls by a wire spring. Would not propolis soon render the spring useless? Mr. Hooker showed his Alexandra hive, to which was awarded third place. He now provides a square Stewarton on the floorboard, and proposes when swarming seems imminent to draw the slides and so at once stop the exit of the bees by nading. Messrs. Green introduced a novelty by adding to their frames a pewter slip, which rests on the runner, giving a very smooth motion, and likewise keeping the frames at the correct distance from each other. We should have put No. 3 higher and given this hive a place. In Class 5 Mr. Abbott was first, with a hive in which the frames have broad ends, while about 3 inches intervenes between the frame end and the hive side. To this space the bees must of necessity have access, and would at once build comb in it when the hive became full. Propolisation will in our opinion quickly so fix the frames as to make them unworkable, while in winter the protection would be even less than that afforded by quarter-inch deal side. In Class 8 Mr. Martin staged a neat skep with a central round hole, over which he places a board channelled in the form of a cross, upon which he stands section boxes in two lines at right angles to each other. Some good section racks were shown, but amongst these we find wooden separators, which have been all but universally condemned by honey-producers. They buckle, and are very likely to have comb attached to them.

The display of honey has not hitherto been equalled. The total weight was nearly three tons, while the flatness, finish, and colour of the sections seemed to leave but little room for progress in this direction. The extracted honey was bright and tough, with hardly an exception, and must constantly have sorely puzzled the Judges in making their awards. For the best exhibition from one apiary Mr. Thorne was to the front with a magnificent lot of 384½ lbs., which with his other entries brought his total up to 528 lbs., by far the largest amount of English honey yet staged by one exhibitor. Mr. Walton came second with 227 lbs., and Mr. Hooker third with fourteen dozen 1 lb. sections, all of admirably even quality. The next class for supers not sections was on the whole poor, and calls for little remark. The glass supers, handsome but unsaleable, are clearly giving way before the handy sections. The cost and risk of transit, without a chance of sale, will in the end banish these ornaments from our exhibition benches.

Class 13, Best twenty-four 2 lb. sections.—Mr. Walton surpassed Mr. Thorne with boxes that can only be equalled. Miss Gayton and Mr. Thorne were second and third in a class in which to win is an event. We were glad to notice Mr. Bower, the worthy Hon. Sec. of the Midland Counties Bee Association, was there an exhibitor. Of the remaining honey classes the running was often so even that criticism is needless. It is nevertheless remarkable that none of the entries was staged badly or call for any adverse comment.

The silver medal for foundation was replaced at the desire of the Judges for two of bronze, one to Mr. Raitt for thick foundation, the other to Mr. Abbott for thin. A silver medal was awarded to Mr. Abbott, jun., who showed Faris's method of making foundation by dipping. In this he displayed considerable dexterity, nearly if not all the sheets being turned out perfect. Mr. Cowan again won in the class for extractors. The machine in principle is that of last year with an additional movement by which the combs can be more readily put in position. Mr. Abbott showed an expeditious way of sealing honey jars. These are first coated with wax on the lip; waxed paper is then, after filling, pressed upon the glass; the two surfaces of wax unite, and a complete closure is effected.

For the best microscopic slides illustrating the natural history of the honey bee, Mr. F. Enock most deservedly carried off the silver medal. The slides were four dozen in number, and if not unapproachable are certainly as yet unapproached. The preparation of parts *in situ* without pressure gives an opportunity of examining structure that flattened chitine could never afford. The beauty of these objects when properly illuminated must be seen to be appreciated. On some slides he brings side by side the homologous parts of drone, worker, and queen, which gives a ready means of comparison, and on others displays the parts illustrative of the complete anatomy of the insect. Some clever sections and some specimens of the interesting parasite *Stylops Spencii* were included in the collection.

The Baroness Burdett Coutts distributed the prizes on Thursday, July 28th. The Rev. H. R. Peel has sufficiently recovered from his severe illness to allow him, to the delight of all, to be present

during a part of the time the Exhibition was open, Mr. T. W. Cowan kindly taking general oversight during the whole week. The report of Mr. Cheshire's lecture on Bees as Florists, Hybridisers, and Fruit-producers, will be given in an early issue.



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Camellias in Covent Garden (*T. J., Rugby*).—The prices for blooms vary considerably according to the demand and the quality of the flowers. At the season you name the wholesale price usually ranges from 2s. to 6s. a dozen.

Conifers Unhealthy (*Lady Grey*).—The spray you have sent was wrongly named. It is not *Pinus insignis*, but *Abies* or *Picea Pinsapo*, which has been injured by frost more or less in nearly all parts of the country, and has evidently not escaped in your collection.

Mildew on Peas (*Rex*).—It is very difficult to destroy mildew on Peas. We have checked it, however, by syringing them with a solution of salt and soft soap, half an ounce of the former and 2 ozs. of the latter dissolved in a gallon of water and applied at a temperature of 120°. Prevention is much better than cure, and this consists in having the ground trenched and enriched to a depth of 2 feet and supplying liquid manure occasionally in dry weather. In all probability liquid manure given in sufficient quantity to penetrate below the roots would benefit your Peas considerably.

The Cucumber Disease (*J. S. R.*).—When questions arrive on Wednesday morning, and answers are given by request in the "next issue," they must necessarily be brief. The answer given to a correspondent on page 518, the issue of June 23rd last, is precisely applicable to your case. As you are an old subscriber you will have this number and can refer to it. The disease that is attacking your plants is, we fear, incurable.

Roses Unhealthy (*An Irish Subscriber*).—The injury of your Roses is due to a small maggot which burrows into the leaf. No remedy that you can now apply will be effectual, but you had better saturate the soil with liquid manure to promote more vigorous growth, and in the winter remove the surface soil and treat as recommended to another correspondent, Mrs. Sylls.

Stocks for Spring (*Alarmed*).—You need be under no alarm at all. Your "Mid-Lothians" now 2 inches high and bushy are not a day too early, for even if they commence flowering in the autumn they will continue producing spikes throughout the winter if placed in favourable position, and will be fine in the spring. We have plants now 6 inches in diameter and nearly the same in height that will afford us a profusion of flowers during the ensuing spring—at least such plants have never failed to do so when they have been well cultivated. Carry out your project and you will attain the end desired.

Grapes Shank (*L. M.*).—The box arrived after our reply to your letter was prepared, but on examination of the contents we concluded that the answer published on page 14 required no extension nor qualification. Your Vines require fresh soil of a more free and porous nature; indeed, such compost as we named in the answer referred to. The roots sent were in a very unsatisfactory state, and until you induce more healthy root-action the Grapes will continue shanking. If you require more precise information we will readily supply it on receiving a full and precise statement relative to the condition of the Vines and border.

Moss on Lawn (*E. M. S.*).—In all probability your lawn needs draining, as the moss indicates the presence of stagnant water in the soil. If drainage is not needed, then all the moss should be removed with a sharp-toothed rake and a heavy dressing of lime and fresh soil spread over the surface; this will check the growth of, if not destroy the moss, and promote the growth of grass. The soil is either too wet or too poor, we cannot tell which. If the former, drainage is the remedy; if the latter, dressings of rich soil after liming, sowing at the same time fresh lawn seed thickly.

Management of Vinery (*Yorkshire Curate*).—It is impossible for us to reply fully and satisfactorily to questions that arrive on Wednesday morning; and we can only say briefly, Damp the house once a day in hot weather, let the minimum temperature be 60°, and let the laterals alone till your question is more fully answered next week.

Potato Haulm Crowded (*Puzzled*).—Too close planting is a great evil and difficult to remedy. To stop, or rather cut back the growth, does not answer, as that will stay the growth of the tubers. If the weather should prove favourable—i.e., dry, they will probably afford fair results. Instead of cutting back the haulm we should prefer to reduce the shaws to about three to each stool and leave them their full length, as everything in the matter of tubers depends on the development of the haulm.

Vigorous Vines not Fruiting Satisfactorily (*Yorkist*).—The Vines are evidently in good condition, and only need to have the wood better ripened, with the pruning less close in winter, to insure good results. We presume the side shoots are not close together, but are so far distant as to admit of the foliage being fully exposed to light and the principal leaves not crowded by

midue extension of the laterals. The side shoots should with vigorous Vines be at least 18 inches apart, and the principal leaves have full exposure to light and air. With vigorous Vines, as yours appear to be, a circulation of dry warm air will be necessary not only to ripen the Grapes but to secure the ripening of the wood, continuing it after the Grapes are colouring until the wood is thoroughly brown and hard, when a less amount of heat will be necessary for the keeping of the Grapes. In pruning leave two or three eyes, cutting back to a plump bud, and you will obtain larger bunches. This will of course cause the elongation of the spurs more rapidly than by closer pruning, but when they become too long they may be displaced by others nearer to the rods.

Mildew on Roses (*Mrs. H. Sylls*).—The spray sent arrived much withered, but so far as we can understand the condition of your Roses they appear to be in an unsatisfactory state owing principally to poverty of soil. The growth sent is very weak and is infested with mildew. When Roses are unhealthy they are sure to be attacked by insects and parasites. Yours, in addition to the mildew, appear to be eaten by a small caterpillar. The remedy we propose is a copious supply of liquid manure to the roots at the present time, syringing the foliage with a solution of soft soap and dusting when wet with sulphur, and in winter the removal of the surface soil, adding fresh compost and a mulching of rich manure. After the pruning is done it will be well to paint the stems with a mixture of sulphur and tobacco water, a little clay being added to cause it to adhere to the branches.

Thrips on Vines (*G. C.*).—The leaf you have sent is much infested with thrips, and if their increase is not checked the Vines will be seriously injured. It is no use sulphuring the pipes, and as the Grapes are colouring you cannot apply an insecticide with the syringe. We should sponge every leaf with a solution of soft soap and tobacco water, or solutions of Gishurst compound, nicotine soap, or other efficient insecticides that are advertised will do equally well if you follow the instructions that accompany them. The sponging may appear to you tedious work, but if you can save the Vines from ruin by a few days' labour you will have an ample reward. Your Vines ought to have had better attention previously, and the house should have been fumigated regularly. The plants infested can be laid on their sides on a mat and thoroughly syringed with an insecticide for the destruction of the insects.

Cherries Falling (*F. J.*).—In the absence of information to the contrary it was assumed your question had reference to an old tree, and that partial exhaustion was the cause of the evil complained of, hence the reply. We agree with you that it would be a pity to mutilate what appears to be a healthy young tree. All you can do is to shorten the growths at once to within four or five leaves of the base, so as to aid the maturation of the wood remaining and promote the formation of fruit buds. Are the main branches of your trees too crowded? This you can determine by the following rule:—The leaves on every main branch should have space for development without overhanging those of the branch below it; or in other words, a little of the wall should be seen between the branches. Overcrowding in the manner indicated is much too common and the cause of many failures with Cherries and other fruits. Where it occurs note should be made now, and a few branches be removed and the others re-arranged as soon as the leaves have fallen.

Kava, Macropiper methysticum (*A Young Gardener*).—This plant grows in most of the islands of the Pacific Ocean, and is called *ava*, *cava*, or *kava*, whence the name of Ava pepper; in the Caroline Islands it is called *schaka*. The root is the part employed, and from it the natives of these islands prepare a beverage which they drink at their meals; it is distasteful to Europeans, but as wholesome and healthful to those peoples as the betel is to the natives of India. The infusion of this root is at first of a sugary taste, like that of liquorice, but it soon becomes warm and stimulating in the stomach, causing a sort of intoxication or mental excitement. The root is acrid and aromatic, and is also chewed by the natives of those islands. In the Caroline Islands the fresh shoots of this plant are soaked along with the roots in water till they become soft, and the liquor is drunk before entering upon any matter of business or offering sacrifice; but by the influence of the missionaries these practices have been discontinued.

Vines Unfruitful (*D. L.*).—There are two causes that contribute to the condition in which your Vines appear to be—the one is immature wood, the other is deep rooting in ungenial soil. We advise you to promote the formation of roots near the surface of the border, for when roots are abundant there, forming quite a network of fibres, the laterals are usually short-jointed and fruitful in character. If the roots are few and strong, and penetrate the soil deeply, long-jointed and luxuriant growth results that is essentially unfruitful. In all probability your Vines would be benefited by lifting them wholly or partially, placing the roots in fresh turfy loam, with a bushel each of crushed bones and lime rubbish, and two or three bushels of wood ashes to each cartload of soil. Bring the roots within about 5 inches of the surface, and give a mulching of manure to keep the soil moist; you will then soon have roots near the surface, and they can be easily kept there with good manure, with which the border should be covered in the summer. The roots of Vines are driven downwards because they do not find the moisture and food they need near the surface during the season of growth. The best time for lifting Vines is soon after the crop is cut and before the foliage falls, syringing freely, and shading if needful to keep the leaves fresh as long as possible. If your Vine borders are full of fibrous roots within 2 inches of the surface, then we can only advise you to remove a portion of the laterals so as to admit more sun to those remaining; this, with artificial heat if needful in the autumn, would ripen the wood and render the Vines fruitful. Assuming the Vines are 3½ feet apart, the luxuriant laterals ought to be 18 inches asunder on the rods or they cannot be matured.

Fruit Trees for House (*W. V. L.*).—The number of trees that your house will accommodate depends entirely on the manner in which they are grown. If they are in pots a greater number may be had than if planted out, as the former grow less strongly; but they require much attention and skilful treatment to keep them in a fruitful and satisfactory state. If the trees are trained in a conical form and kept closely pinched each may be managed in a space of 3½ to 4 feet square, and your house would hold two rows, or about eight trees. If planted out you would find a difficulty in confining them to the size indicated. If you require as much fruit as possible with the least amount of attention we advise you to plant three Peach trees in the front and train them on a trellis, which should be taken up to a convenient height and brought over in the form of a bow to within 2½ feet of the back wall, the edge of the trellis not exceeding half the height of the wall. This wall you could cover with Figs, planting them out, and they would receive light from above the trellis. Eventually the Peach tree in the centre of the trellis, which should be the Royal George, would cover the entire surface if desired, and the end trees could be reduced yearly to afford room for the other. One good tree filling the trellis would afford you more and finer fruit than any number of trees in pots or

planted in the body of the house and grown as bushes, unless indeed you are a very skilful cultivator. If you desire more than one variety you can manage the trees so as to retain each of the three in an equal amount of space. If you have a desire to indulge in the cultivation of trees in pots, the quantity or quality of the fruit not being of great moment, you may obtain a dozen trees to begin with, reducing the number as the growths extend; but trees trained on a trellis would be the most certain to afford good crops of satisfactory fruit. The pipes should be near the front, not at the back of the house, which is the worst possible position for them. Assuming the roots of the trees are inside the house, a wood trellis would be better than a bricked floor. A border 2 feet in depth will suffice; it should be well drained, but in all probability a concrete bottom can be very well dispensed with. You, however, give us no information relative to the character of the subsoil, and whether the site is wet or dry. If you need further advice, and will state your case and requirements fully and clearly, we will readily render you all the assistance we can.

Budding Roses (*Amateur*).—We have budded Briars, and the buds have commenced growing immediately, and flowers have been produced the same year; but the buds make the best growth when they remain dormant until the spring succeeding the budding. We do not think it desirable to force them into growth at this season by cutting back the stock, for the shoots cannot become well ripened, and in severe seasons they perish; if not, they mostly grow weakly in the succeeding year.

Names of Fruit (*P. C.*).—Owing to the fruit not having been packed securely it was much bruised in transit. We think, however, the Cherry is Governor Wood, which is an excellent variety.

Names of Plants (*A. Boyle*).—The plant with the large leaf is *Cineraria maritima*; the other is *Santolina incana*.

Buying Condemned Bees (*J. R. V., Oswestry*).—It is preferable that the bees bought should have stood a mile at least from the position you intend them to occupy, but at considerably less than this distance the risk from loss is not worth considering if other things make the purchase desirable. We should, however, place half a mile in a straight as the limit. The disturbance of driving and mixing tends to attach the bees to their new quarters.

Feeders (*Buzz*).—The feeder exhibited last year is not purchasable. To feed at the hive door cut a piece of wood three-eighths or half an inch thick into a form resembling the front of a bootjack; over this place another with a 2-inch hole, which will be covered with perforated zinc as a stage for the food bottle. So place this on the alighting board that the entrance to the food bottle covers a part of the doorway. A third piece of wood may be needed beneath, this depending on the width of the alighting board. The bees soon learn to use this feeder, when it is only necessary to keep it constantly supplied with diluted honey. This plan will not pay for storing sections. It is only suggested for finishing them.

Food for Bees (*H. M., Southport*).—Honey is the food bees most relish, but it is not on that account necessarily the best to give. Its odour is exceedingly likely in times of scarcity to induce robbing. Loaf sugar syrup to which a small quantity of vinegar (a tablespoonful to about 2 lbs. sugar) has been added to prevent crystallisation answers all the ends of honey as a food. In the winter liquid food must not be given; use then barleysugar, but by good management all winter feeding is made needless. Your question on feeding in bad weather cannot be categorically answered. If the bees are poor feeding in bad weather is essential, and then nothing pays better than this attempt. Feeding does not make bees lazy. If feeding increases the well-being of the stock it increases the vigour and earnestness of the bees as honey gatherers. You ask further if bees can make honey from artificial food, such as sugar and beer. In the first place beer is not a food for bees, except as it contains a small quantity of sugar. The ferments of the beer are dangerous, the alcohol is damaging, and the caramel predisposes to dysentery. See issue January 13th last. Sugar (especially Grape sugar) is a true food, yielding when consumed by the bees heat force or wax in the same amount as honey itself, but it cannot be converted into honey nevertheless. After storing it remains sugar, slightly altered only by an animal acid secreted by the insect.

COVENT GARDEN MARKET.—AUGUST 3.

We have now passed through the bulk of the soft fruit, business being somewhat quieter. There is a steady demand for Peaches and Grapes, the prices of last week being maintained, with the exception of common samples, which are with difficulty cleared.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 3 to 2 6	Lemons.....	per case	12 0 to 18 0
Apricots.....	box	1 6 3 0	Melons.....	each	2 6 4 0
Cherries.....	per lb.	0 3 0 6	Nectarines..	dozen	4 0 10 0
Chestnuts.....	bushel	0 0 0 0	Oranges.....	per 100	4 0 8 0
Currants, Black..	½ sieve	6 0 7 0	Peaches.....	dozen	4 0 12 0
„ Red.....	½ sieve	3 6 4 6	Pears, kitchen..	dozen	0 0 0 0
Figs.....	dozen	3 0 0 0	„ dessert.....	dozen	0 0 0 0
Filberts.....	per lb.	0 0 0 0	Pine Apples...	per lb.	3 0 4 0
Cobs.....	per lb.	0 0 0 0	Strawberries...	per lb.	0 4 1 0
Gooseberries...	½ sieve	2 6 3 6	Walnuts.....	bushel	0 0 0 0
Grapes.....	per lb.	1 0 4 0	ditto.....	per 100	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney...	per lb.	0 3 0 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	Pickling.....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 9 1 0
Carrots.....	bunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	per 100	1 6 2 0	„ Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0 0 3 6	Radishes.....	doz. bunches	1 6 2 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 6	Scorzoneria.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	0 0 0 0
Fennel.....	bunch	0 3 0 0	Shallots.....	per lb.	0 3 0 0
Garlic.....	per lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 3 0 4



POULTRY AND PIGEON CHRONICLE.

THE FIELD CULTIVATION OF STRAWBERRIES.

(Continued from page 94.)

THE employment of steam power in the tillage of land for Strawberries was alluded to last week because deeper and more effective stirring of the soil may be made than can be done by horse labour. It is difficult to cultivate deeper than 18 inches with a full complement of strong horses, yet it is comparatively easy to thoroughly loosen the subsoil by steam power to the depth of 2 feet. When we consider that our success will mainly depend upon the depth at which the soil has been broken we are bound to take advantage of the assistance of steam. Cropping the land and its previous treatment before fallowing will also have to be considered. Some farmers advocate the cultivation of Potatoes as the means of partially cleaning and manuring the land. There is, however, one plan which we have not seen referred to by Strawberry cultivators which we can recommend. For instance, if an old lea, either of Saintfoin or Grasses, should be intended for culture, we would pare and stifle-burn the turf about 1½ inch in depth. This will yield a large quantity of ashes, affording an abundant supply of mineral manures, all of which are essentials in Strawberry culture. As soon as these ashes can be obtained and spread, which in ordinary seasons may be best done in May and June, the ploughing and subsoiling may be done immediately if the land is free from Couch Grass; if not, fallowing the surface should be continued until it is quite clean. We do not, however, by any means object to Potatoes being taken if the land is heavily manured at planting time, because the deep steam culture and subsoiling may be done in October, or as soon as the Potato crop is cleared off.

Before going any farther in the matters of tillage let us consider the situation and position of the farm; for although it is extremely important that it should be near a railway station, yet it is of still more consequence that we should be able to command the services of women, girls, and boys for picking. There will be less difficulty in the future, for the population is sure to increase in the vicinity of stations; still we must be certain of sufficient hand labour being available before deciding upon cultivating Strawberries, and this will be more likely to be secured in the neighbourhood of small towns and populous villages. If this industry should extend, as we think it will, there is no reason why the migration of labour should not take place in the same manner as hop-picking is provided for. The home farmer in the selection of fields must be guided by their position more than by the nature of the soil. Fields for the growth of this fruit if situated near the farmstead could be more easily provided with yard or box manure, which will be necessary, especially if the land is poor and dry. In the event, however, of the land being a good sound loam artificial manures will prove quite sufficient, and may be used with equal or more advantage, especially if the land is outlying. In choosing and laying out fields for Strawberry cultivation we should select land moderately level, and if sheltered in the distance by hills or woodlands so much the better, and the best aspect is south. The size of the fields may well vary from 4 acres to 8 acres, taking the latter where the most shelter is obtained by growing timber. In the absence of trees or hedges lay out the land into 4-acre pieces, and for shelter plant evergreen hedges, these to run the whole length of the field on

the eastern and western sides, because the east winds are the most damaging in winter and early spring, whilst the west winds are often so strong at blooming and fruiting time as to seriously injure the crop. As we recommend the lines of plants to run direct north and south in order to facilitate cultivation, manuring, picking, and removal of fruit, we advise that a roadway be retained under the hedges on either side at both ends, and if the field is 8 acres across the centre also. Thus a road made 8 feet wide will secure complete communication for all purposes, but especially the roadways under the hedges are advisable, because no good fruit can be grown near the hedges when they are allowed to run up to the height of 10 or 12 feet or more. These, however, should be closely trimmed on both sides, and topped at the required height.

On the home farm under varying circumstances as regards preparation of the land for planting, two periods only can be properly chosen for planting—viz., March or April, otherwise July or August, moist weather at the time being of the first consequence. In order that all the cultivation and tillage may be done without the use of the spade or fork, and also that the plantation may be retained in full bearing as long as possible, it is of the highest consequence that the distance between the rows should be wide. We find that growers who have planted at a yard apart between the lines have not only succeeded in obtaining large crops of first-class fruit, but have retained their plantations on the perennial system for a period of ten years or more with full profit and advantage. We therefore recommend the home farmer to set the plants 3 feet apart between the lines, and at 18 inches apart in the lines, and at the end of three or four years to remove every alternate plant, so that they shall afterwards stand at 3 feet apart each way. This will allow interculture by horse labour to be done both lengthways and crossways without injury to the stools: in fact, it must greatly benefit the plants, as it is chiefly from their having so much room for rooting, and the tillage, including subsoiling once a year, which has also the effect of root-pruning, that enables the stools to be retained for the longest period. It also allows this large space to be cultivated and subsoiled in the autumn of every year; for although it is not advisable to disturb or loosen the earth near the stools, yet it is of great consequence that the interculture should be complete, thus giving the home farmer the opportunity if it is required to continue the growth of Strawberries on the same land for a long series of years.

Strong well-rooted plants should be obtained if possible grown on beds for the purpose upon the farm, and thus save the expense of purchasing. When on a large scale it is important to have the plants ready to hand; at the same time the growth of plants of various sorts may prove an experiment, and to some extent indicate the sorts suitable for the soil and climate in which they are to be grown in the future. In manuring the soil for Strawberries plenty of long horse or box manure will be at hand, but this should be reserved for application in the month of April. In case of any deficiency half-decayed leaves obtained from the woodlands and shrubberies will answer the purposes of keeping the ground moist, encourage surface-rooting, and also assist in keeping the fruit clean. We advocate liberal dressings of artificial manures, such as bone superphosphate and kainit, the latter being a compound of salts and potash. The kainit should be applied at the time of ploughing between the rows, and the superphosphate in the furrow just before the subsoiling, in order that it may become mixed with the subsoil. We do not advocate guano, because we shall get enough ammonia from the dung.

We must now refer to the cultivation between the rows, and planting. When two rows are set out at 3 feet apart there will be a space for cultivation of about 18 inches, which gives room for two furrows to be ploughed by the one-horse plough, the subsoiler following in the track of each furrow drawn by two strong horses, and, as we have previously stated, this work should be done in October. In planting, instead of setting in holes made by the spade, draw a furrow with the plough 4 inches deep, spread out the roots of the plants in the furrow, and cover them by hand with the fine earth from the furrow side, to be trodden down firmly. The plants will then be somewhat below the surface, giving the opportunity for earthing-up a little with the plough every spring. In order that a clear course may be obtained for the autumn cultivation the runners should be cut away from between the plants, leaving, however, their foliage to protect the crowns of the stools during the winter months. By the adoption of these plans in winter and the following spring any exuberance of foliage will be checked, and more strength will consequently be thrown into the blossom buds. For the early soils, such as sands and gravels, the Early Crimson Pine variety will answer; but for the sound loamy soils Sir Joseph Paxton is a good firm

fruit, and will bear long carriage if required. For cold soils the latest sorts, such as Enchantress and Excelsior, may answer, and thus enable the home farmer to supply fruit for market during the whole season.

WORK ON THE HOME FARM.

Horse Labour.—Harvest work is now general in all but the latest districts, but this should not so much interfere with other work as to prevent the seeding and drilling of stubble Turnips, sowing Trifolium, Mustard and Rape mixed, or Thousand-headed Kale for spring feeding. During the first few days of harvest the horses which may not be required to work the reaping machines may well be employed in ploughing and preparing for seeding Turnips after the Pea crop. It is a good plan to remove the crop on to about half the land where it grew, and plough and drill Red Mammoth Turnip seed with 4 cwt. of superphosphate and ashes per acre. The land ploughed during the day should be worked fine and rolled down, then drilled every evening after four o'clock. In case the Peas are not fit to carry to rick or barn they may be removed on to the other half of the field, and thus allow the whole field to be seeded with Turnips. In nearly the same way Turnips may be sown after the early grain crops—Early White Canadian Oats for instance, or Rye. It will depend upon the date of seeding what sort of Turnip should be drilled, for it is only in the first week of August that we advise sowing the Red Mammoth; after that we prefer the White Globe or Early Stone varieties. If sown upon clean land free from Couch they come in very conveniently for spring feeding, and may be followed either by Lent corn or Mangolds. For the latter it is a capital preparation, especially when the Turnips have been fed off, the sheep eating hay, cake, or corn. Trifolium should now be sown as soon as the crops are cleared away, for unless this is sown early the slugs are liable to eat the young plants—in fact, this is almost the only enemy to this useful crop. In order to insure a succession of spring fodder all three sorts should be sown, the Early Crimson Blossom, the Second Early Pink, and the Late White Blossom. Reaping grain by the Wood's String Binder is advised, for if not in stock on the farm it may be hired by engaging it soon enough. Where the crops of straw are bulky the work is severe for the horses, and relays of fresh animals should be taken every four hours. The reaping may then be continued from daylight until dark when the weather is favourable and the straw dry. We like to cut and tie not only Wheat but also Barley, Rye, Oats, and drege if the straw is long enough; otherwise it may be cut with the mowing machine and harvested as loose corn.

Hand Labour.—Men, women, and their families are now fully employed in work connected with the harvest, and also in hoeing and singling the root crops, which may require attention. There is, however, a great mistake often made by small farmers, and where hand labour is scarce—namely, by turning the horses out to graze and employing the teamsmen and boys in work on the harvest field or ordinary labour of the farm. The mistake is this, That there is no time during the whole year when the labour of the horses is of more value than in the first week or ten days of harvest and until the carting and stacking of the corn is commenced, because ploughing for stubble Turnips is then requisite, and also the cross-ploughing of fallows on the strong soils is of importance. It is a sacrifice of valuable time and opportunities to allow horses to remain idle for the sake of making the manual labour available in other directions. During wet days, when harvest work may be interrupted, the men may be employed in drawing straw and piling it away in readiness for the thatchers.

Live Stock.—The stock lambs which are now being purchased should be shorn, without washing, not later than the 20th of August, for of whatever breed they may be, except mountain sheep, they will always winter very much better, and the farmer will not only obtain the value of the wool but also from 5s. to 7s. per head advantage when sold fat in the spring. The ram lambs should also be shorn a few days previously to being turned out with the ewes. Sheep on the pastures or parkland should be folded on the arable land if the weather is hot from ten to four o'clock, as it is almost the only mode of saving their manure and preventing them from taking to the shade under trees and hedges. Young cattle, too, both calves and yearlings, do best in hot weather to find shelter in a littered yard and shed with access to water, for the manure would then be dropped where it would be available instead of being lost, as is often the case when animals resort for shade to spreading trees in the pastures or parklands. We find there is, in feeding the salt marsh grass land formerly reclaimed from the sea, a point or matter which many farmers do not understand—viz., they are at a loss to account for the fact that cattle or horses put on the pastures in May and remain until the end of October prove to be in no better condition at quitting than when they first entered, and frequently are found to have depreciated. To avoid this turn out the cattle, &c., at the end of April, and continue the feeding until the second week of July; then withdraw them and lay the grass up for autumn feeding with in-lamb ewes or store sheep, commencing to feed off the grass the first week in October. The sheep do exceedingly well as stores by taking them to the arable land at night time, giving them a small portion of roots and hay in November if the weather is wet and stormy. After the grass has been eaten down any coarse herbage left is mown off with the scythe and the pasture laid up until April in the next year, when the grass will be young and fresh for the dairy cows, and on this food

they make better butter than when fed on meadows, dry pastures, or parklands. In the same way horses will get fat until July, whereas if allowed to remain on the marsh pastures until Michaelmas they would become poor. Again, as regards manure, we do not regard cake as of any value to this land if fed off by cattle, hence the practice of feeding store stock only or dairy cattle; nor is any yard manure of much service. An application of earthy materials, such as road scrapings, after being mellowed and turned in heap and laid out in the winter months, greatly improves the herbage and quantity of pasturage.

BATH AND WEST OF ENGLAND SOCIETY.

At the Council Meeting held in the Board-room at the Great Western Railway Station, Bristol, on Tuesday, July 26th, there were present Mr. J. C. Moore-Stevens in the chair; Messrs. Jonathan Gray and H. G. Moysey, Vice-Presidents; the Hon. and Rev. J. T. Boscawen, Col. Drewe, Col. H. A. F. Luttrell, and Messrs. J. H. Arkwright, J. C. Best, R.N.; C. Bush, R. H. Bush, Charles Edwards, W. Farthing, H. P. Jones, J. E. Knollys, Evan H. Llewellyn, R. Marker, C. J. Naylor, R. Neville, C. Pain, H. D. Skrine, E. W. Williams, and J. Goodwin, Secretary and Editor.

FINANCE.—Mr. Charles Edwards, as Chairman of the Finance Committee, reported that as the result of the unfavourable weather at the Tunbridge Wells Meeting there was a loss, involving the necessity of selling out £1000 of stock, and as consols now stand at par or thereabouts this was considered a favourable time to realise, and an order was made accordingly.

CARDIFF MEETING.—The Council, on the application of Colonel Luttrell, granted the sum of £2167 for stock prizes, the appropriation of part of the amount to be subject to any list of local prizes that may hereafter be offered for Welsh cattle and other stock.

On the application of Mr. R. H. Bush the sum of £200 was granted for poultry prizes. The usual amounts were also voted for the several departments of horticulture, music, and the Art Union.

A letter from the Secretary of the Glamorganshire Agricultural Society was read, asking, on behalf of the Committee of that Society, to be furnished with rules and specific terms by which they might be allowed to amalgamate with the Bath and West of England and Southern Counties Society on the occasion of the Cardiff Meeting, should it be deemed advisable by both Societies to do so. The letter was very cordially received, and it was resolved—"That with the view to the promotion of so desirable an object the members of the Glamorganshire Society be offered the same privileges in connection with the Cardiff Meeting, and on the same terms as conceded to the Worcestershire and other county societies within the district of the Society's Shows."

IMPLEMENT TRIALS AT CARDIFF.—The Stewards of Implements, considering that the ground offered by the Cardiff Local Committee for the trial of implements is too far distant from the show yard to render them generally accessible, it was proposed and resolved that arrangements be made, if possible, for obtaining about 14 acres of land in immediate proximity to the show yard, and that, with the exception of implements which can be worked upon this plot, the ordinary trials be abandoned.

APPOINTMENT OF COMMITTEES, STEWARDS, AND OFFICERS.—The various committees, stewards, and officers for the ensuing year were nominated, the only changes being that Colonel Drew is proposed to be added to the stewards of stock, Mr. Llewellyn succeeds Mr. Holdsworth as steward of exhibitors' gates, and Mr. Warre is nominated as an additional steward of the Arts department. It was also reported that Mr. Samuel Jones, who for a long term of years has discharged the duties of store-keeper much to the satisfaction of the Stewards of plant and the Council generally, has so far recovered from the results of his recent very serious operation, that it is hoped arrangements may be made whereby his future services may be facilitated and secured.

TUNBRIDGE WELLS MEETING.—The Council unanimously elected Mr. E. Durrant, hon. local secretary at Tunbridge Wells, an honorary life member of the Society, in consideration of the great energy, zeal, and courtesy displayed by him in promoting the success of the recent meeting.

VARIETIES.

SELECTING CHICKENS.—"It is particularly necessary," writes a good authority, "in a dry summer such as we have been having, continually to thin our broods of chickens if we desire to rear any to maturity and to fine size. Insect provender is scarce, and the ground is tainted from having had no thorough soaking for months past. In such a season it is good policy to kill off all but the very best and most promising chickens."

— *MOULTING HENS.*—The present is a good season to allow our best show hens to sit, and if not to rear broods, at least to sit a month on sham eggs. They will moult well and thoroughly after such a rest, and not drop their feathers, a few at a time, in the irregular and unsatisfactory way that fowls often do.

— **HEAT V. DUCKLINGS.**—Our ducklings have suffered much from the late great heat. A whole brood of Pekins which for two or three weeks did admirably, suddenly lost the use of their legs and rolled about as if paralysed. We at once put iron in their water, but with no effect. We should much like to know if any of our readers have found their ducklings suffer in a similar way, and if so whether any remedies have proved of use.—C.

— **THE MANCHESTER BEE SHOW.**—We extract the following from the "Bowdon Guardian":—"At the forthcoming great Show at Old Trafford, at which £2000 is being given in prizes, a most interesting tent will be devoted to bees and honey. It has been thought that this could be got up from Mr. A. Pettigrew's apiaries at Bowdon without competition; and with this end in view, to make bee-keeping a popular study, as also an interesting and remunerative occupation, the tent will be formed as stated. There will be four observatory hives with a queen in each, seen at a glance with a ribbon round her waist. On a black board, written with the fingers of the bees, will be the legend 'God Save the Queen.' This has been a work of the utmost difficulty, and will be a great novelty. On another black board, written in honeycomb, will be the words 'Industrial Exhibition.' Besides this there will be nests seen in various forms; the beginning and finishing of palaces of wax, supers in glass, wood, and straw of various dimensions will be seen, and practical bee-keepers will see how easy it is to fill them, as Mr. Pettigrew will exhibit skeletons, so as to show how easy it is to work upon them and how soon they may be filled. Other interesting exhibits will be on view." We regret to learn that, owing to serious illness, Mr. Pettigrew will not be able to carry out all that he hoped to do at the Show referred to, for his apiary has suffered considerably. Ten first swarms were lost and a number of second swarms; yet, as he is now in a convalescent state, we trust he will be completely restored to conduct the Show to a successful issue.

— **AGRICULTURAL PROSPECTS.**—The Wheats are standing in sheaf in many parts of the midland and southern counties of England, and their appearance in that position is not a bulky one. Before the close of the present week Wheat-cutting will be general south of the Trent. The recent rains will scarcely affect the result of the harvest, except in very late districts; but they have been very beneficial to the struggling root crops and to the aftermath grasses and Clovers. The latter are very short and in full blossom. Stock have done well hitherto on the scanty dry herbage, but now that is gone keep is again very scarce, and dairy districts are being hard pressed. Store stock markets vary with the localities in which they are held, but the level of prices is low everywhere.—(*Mark Lane Express.*)

— **THE TRADE OF NEW ZEALAND.**—The value of imports during the past year has decreased by over a million, while that of exports has increased by nearly three-quarters of a million—in fact they very nearly balance, whereas hitherto the value of imports has always been greatly in excess of that of exports. A proposal to establish a sugar refinery at Fiji meets with some favour at the hands of business men, but it is hardly likely the different cities will be induced to co-operate, although the establishment by New Zealand capitalists of such an industry would be greatly to the advantage of all. Graziers and others are strongly advocating the formation of a company to undertake the exportation of meat and other produce in a frozen state to England, and it is likely something tangible will result from this agitation. At present the occupations of farming and grazing hardly pay, the price obtained for stock being so low. New Zealand beef is equal, if not superior, to that grown in any part of the world, and it can be produced in almost limitless quantity. Stimulated by the offer of bonuses by the Government and by the severe depression in trade, people in various parts of the colony have started the production and manufacture on a large scale of articles largely consumed by our population; amongst these may be mentioned cement, starch, and arrowroot. The production of coal is greatly on the increase, valuable deposits having been discovered in fresh places. Paraffin oil is also likely to become one of our largest productions.—(*The Colonies and India.*)

POULTRY AND PIGEONS

MY FIRST SHOW.

I AM afraid to say how many years it is since I first competed at a poultry show, and as my experience on that occasion was a somewhat mixed one it is perhaps better not to define the date precisely. I was a mere boy when the poultry mania first took possession of me. A setting of Duck eggs purchased by my father at a show, and supposed to be Rouen, began it. A hen had to be got to hatch them; and although the Duck eggs were a failure, "Polly" was such a wonderful layer that she could not be parted with, and a few more birds were bought to keep her company. These were nondescripts, partaking somewhat of Spanish characteristics, and soon gave way to a Silver-Grey Dorking cock and some farm-cross hens, purchased from my first poultry friend. That purchase formed the basis of an acquaintance with one of the truest and kindest fanciers it has ever been my good fortune to meet; acquaintance ripened into a friendship, which has been maintained with much pleasure and benefit to me ever since. A few visits to the well-kept yards of Miss — so far influenced me that I felt I must have a stock of pure-bred birds. The space at my command was very limited, so after some consultation Spanish was fixed on as the most suitable breed. Money also was limited; I had therefore to be content with purchasing a setting of eggs. There were thirteen of them, and to my great satisfaction they produced thirteen chickens. It was May when they were hatched, and the season being favourable they were all reared. They had, I remember, some difficulty in feathering, as Spanish will have, but with the aid of bread and ale and a little meat they got well through that critical stage. By the following March, when the spring show of the Royal — Society was approaching, the chickens had grown into such fine birds that I determined to exhibit them. In those days a pen of chickens consisted of a cockerel and three pullets. There were three prizes, so I must needs enter three pens, or twelve out of my thirteen chickens.

There was also a class for a cock and two hens over a year old, and I was desirous of making an entry in that class also. Miss — had a beautiful pair of early-hatched pullets, which she was willing to take £3 for, but I knew not where to find a mate for them. Just then there appeared an advertisement that Mr. X was going to give up Spanish, and had his entire stock to dispose of. Here was evidently my opportunity. Mr. X lived some five miles away, but I soon walked that five miles. Mr. X had an experienced poultryman, who confirmed the statement that Mr. X was giving up Spanish, and showed me the birds for sale. There was one very fine old cock. I was almost afraid to ask his price. It was, however, moderate, being only 25s. This surprised me a little, but the fact that more room was wanted for other more important breeds explained the matter. I made up my mind to have that bird, and, giving a glowing account of him to the home authorities, obtained the necessary funds. I could not do another ten miles that day, but I was off the next morning with a companion and a large carpet bag in which to carry home my purchase. I was not without anxiety lest some other purchaser should have been before me, but my fears on that score were soon removed, and completing the purchase I started for home with my carpet bag, propped well open to admit air to the inmate.

It was just time to enter for the Show, and my entries were duly made. This had hardly been done when upon going into the yard one day I was horrified to find the Spanish cock's face dreadfully lacerated on one side. He had a yard to himself, so I was completely at a loss to account for the disaster. Upon taking him up to examine his wounds I was almost sickened by a foul smell proceeding from his mouth. An examination showed that his throat was filled with cancerous ulcers, and having been neglected for some days he had torn himself with his spur in his efforts to relieve the irritation. I was in despair, and feared that all hope of exhibiting or curing the bird was over. Upon consultation with my ever-ready friend Miss — she recommended me to apply zinc ointment to the scar on his face, and to bathe the throat with vinegar and water three times a day—not with any hope of curing the throat, but simply to keep it from getting worse until after the Show. This treatment was successful; the wound on the face healed and the scar came off, and, although one side was shorter than the other, still it was manifestly the result of an accident. The throat became slightly better and free from offensive smell. Upon taking the birds to the Show I found that Mr. X had "gone out of Spanish" in a somewhat peculiar fashion by purchasing superior birds to those he had sold. He had his reward, however, in the fact that his new purchases were suffering

from scabby faces. The good condition of my old pen and the beauty of the young hens' faces carried the day, and Mr. X had the satisfaction of seeing the bird he had sold cheap to a beginner placed first while his new purchase stood second. My three pens of chickens stood second, third, and very highly commended, and I found purchasers for two of them at good prices; so that, although I was obliged soon afterwards to put the cankered bird out of his misery, I had on the whole no reason to be dissatisfied with my first show.—D. M.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at the Charing Cross Hotel on Wednesday, 27th July, at 2 P.M. There were present the Hon. and Rev. F. G. Dutton (in the chair), Rev. J. D. Peake, Messrs. T. W. Anns, R. A. Boissier, A. Comyns, H. R. Dugmore, S. Lucas, and L. C. C. R. Norris.

ELECTION OF MEMBERS.—The following new members were elected:—T. McArthur, Stirling Street, Alva, N.B.; J. McArthur, Stirling Street, Alva, N.B. The following new associates were elected:—Mrs. Chandos Weatherley, Wayton Cottage, Beaminstor, Dorset; G. Nadin, 7, Well Street, Leek, Staffordshire; R. E. Roscorla, Treguissy, St. Austell, Cornwall.

RETIREMENT OF COMMITTEEMAN.—The Secretary read a letter from Mr. T. P. Lyon announcing his desire to retire from the Committee. The Secretary was directed to issue notices requesting nominations to the vacancy created by Mr. Lyon's retirement.

CLUB SHOW.—The question of holding a Club Show was discussed, and notice was given that the following resolution will be proposed by Mr. Norris and seconded by Mr. Lucas at the next meeting of the Committee:—

"That the Poultry Club do guarantee the expenses of, and give prizes at, one show in each year in localities changing from year to year, and in the first instance do open negotiations with the Committee of the Cambridgeshire Ornithological Society to hold a show in conjunction with theirs about the beginning of January, 1882."

DATE OF MEETING.—The next meeting of the Committee was fixed for Monday the 19th September, instead of the date previously announced.

RATS v. DUCKS.

FOR two years, in spite of traps and other contrivances, I lost all my young Ducks. A friend of mine never lost one, though living in the neighbourhood. "Why is it?" said I to him. "Cats," said he. I had two from him, and this year have not lost a single young Duck by rats. At the present time I have two good-sized kittens that have been brought up among the poultry and Pigeons. I will send either or both to anyone paying for the basket or baskets to put them in for travelling. I think in the poultry breeding there is nothing so hard to contend with as rats. They come from far and near in the night and kill whole broods at a time. It is disheartening.—HARRISON WEIR.

P.S.—In my article "Fanciers v. Farmers" (page 72), the name Mr. Stringer was misprinted for Mr. Sturgeon, the correct name of the farmer referred to as having brought the Buff Cochins into notice.

SOME PRETTY TOY PIGEONS.

WE have almost exhausted the list of those Toy Pigeons which from their gradual improvement and from the attention paid by fanciers to their points of form, have emerged into a class intermediate between the so-called "high class" Pigeons and the mere Toys. There are, however, many other kinds of Toys little peculiar from distinctive form, yet very beautiful in feather, which must by no means be passed over. Some of them are peculiarly suited to a garden aviary or to fly at liberty; and being procurable at moderate prices, come within the reach of lovers of birds as distinct from professed fanciers. They require no long and tedious description of points, but we will attempt to recount briefly their chief beauties.

The Magpie.—Sharp contrasts of white and colour are always beautiful in Pigeons. We have admired them in Turbits, but then Turbits to be of value must have many other points besides correct colour and markings. Magpies, on the other hand, provided their colour is really bright, and this it generally is, and their markings are well defined, are good of their kind. Fancy is content in their case with the original Pigeon form, and requires no great peculiarity of head or tail. The form of the Magpie is as nearly as possible that of the common dovehouse Pigeon. Some strains have been crossed with Tumblers, and in this case the Tumbler blood is apparent in the smallness of their heads and shortness of beak; such birds do not find favour with good Magpie judges. Their eyes should be pearl or light, and their beaks pink. The latter point is difficult to obtain in the black variety, birds of which,

otherwise good, are often disfigured by dark marks on their beak. The chief point, however, of the Magpie is accuracy of its feather markings; the wings, lower breast, and under parts are white, the rest of the body of some one colour, as red, yellow, black, blue or dun; the three former colours are to be had very good in the Magpie. Of course, the great beauty of the bird is to have the clearest distinction between the white and coloured parts; when these are sharply and accurately divided the bird is called in the language of fanciers "clean cut." There may be a little variation in the amount of colour. A bird in which the white predominates, and in which consequently the line of division is drawn high on the breast and wing, is said to be "high cut;" one with the opposite tendency "low cut." A flight of Magpies of all colours mixed is a charming sight, second in our opinion only to a flight of Turbits.

Suabians are a most beautiful and peculiar race, but one which to be appreciated should be kept in an aviary near the ground; their markings are too fine to be seen at a distance. The Suabian is a bird of dark ground colour, spangled throughout with pinkish white; the wings have two white bars; the tail of good specimens a white bar across them; the legs are clean, the eyes dark, and the heads peaked.

Starlings at first sight are not attractive, but nearer inspection shows them to be beautifully marked. We once saw a large flight of them which quite made us alter our former unfavourable opinion. Their good form is simply that of the dovehouse Pigeon, their plumage is black with white bars on the wing and a crescent of white on the breast.

Crescents have similar markings to Starlings; their colour, however, is far different and much prettier, the ground being a pinkish fawn or cream, and the wing-bars and breast-crescent a rich brown. We have seldom seen them really accurately marked, but even those with somewhat undefined crescents are so beautiful that we should think it well worth the while of any true fancier to breed carefully or to improve them.—C.

OUR LETTER BOX.

Leghorn's Legs (*Old Subscriber*).—Yellow is undoubtedly the proper colour.

Pullets Roosting in Trees (*J. R., Rochdale*).—If your poultry house be kept clean and well ventilated, we think it best not to allow the pullets to get in the habit of roosting out of doors. It would do them no harm now, but in winter it would interfere with their laying, and a severe frost might kill them.

Chickens Dying (*J. P.*).—The seeds of the Laburnum are violently purgative, emetic, and decidedly poisonous, and it may be that the deaths amongst your chickens are caused by picking up some of them. We think, however, that you are giving them too much grain for such young chickens, and recommend you to limit the grain to the last meal at night, and give some oatmeal or barley meal mixed with the middlings, scraps, &c., for the other meals. Feed only three or four times in the day, and see that no food is left lying about to get sour. Look also to the supply of fresh water and gravel. You might cut open the crops of some of those that die and see if they really have been eating the Laburnum seeds. We shall be glad to hear from you as to this.

Salicylic Acid for Sheep (*C. M. M.*).—Salicylic acid when added to water for animals to drink should be in the proportion of two table-spoonfuls to a bucketful, or say two and a half to three gallons of water. In powdering the tops or points of the hoofs of animals the powder to be used is the powder called salicylic acid, which can be obtained from a chemist.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1881. July.		Baromet- er at 32° and Sea Level	Hygromet- er.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Sun.	24	Inches.	deg.	deg.	S.	deg.	deg.	deg.	deg.	In.	
Mon.	25	29.889	68.1	62.0	S.	65.4	73.4	57.9	108.5	54.1	0.010
Tues.	26	29.709	60.8	52.4	W.	64.5	69.8	51.0	126.6	46.7	—
Wed.	27	29.544	61.4	55.7	W.	64.0	72.1	53.0	126.2	51.1	0.010
Thurs.	28	29.975	56.7	52.6	N.W.	64.3	68.3	50.6	113.3	47.3	—
Friday	29	30.216	62.3	52.6	S.	63.0	74.2	44.3	122.3	38.3	0.350
Satur.	30	30.976	63.0	59.6	N.W.	63.3	73.8	55.3	122.1	53.4	—
		29.890	62.6	59.7	S.	63.7	68.7	57.2	93.0	53.4	0.325
Means.		29.835	62.1	56.4		64.0	71.5	52.3	115.3	49.2	0.695

REMARKS.

24th.—Dull, with slight rain at 0.45 P.M.; brighter in evening.
25th.—Cool and breezy; bright sunshine at intervals.
26th.—Morning bright and fine; afternoon overcast, with gusty wind; slight shower 6.30 P.M.
27th.—Cool, fair, bright at intervals.
28th.—Very bright cool morning; cloudy and gusty after part of the day; rain at 11 P.M.
29th.—Slight showers first part of morning, then fine, bright, and breezy.
30th.—Showery, generally overcast.
Considerably cooler than the previous weeks, and of near the average temperature.—G. J. SYMONS.



11th	TH	Birmingham Botanical Society's Show (two days).
12th	F	
13th	S	
14th	SUN	9TH SUNDAY AFTER TRINITY. Antwerp International Horticultural Exhibition (three days).
15th	M	
16th	TU	
17th	W	Shrewsbury Horticultural Exhibition (two days).

YOUNG GARDENERS.

SOME two years ago, when I wrote a few lines of encouragement to young gardeners in the *Journal*, I had no idea they would be so kindly received by those to whom they were addressed. The result pleased me in more ways than one. I was glad to see the *Journal* is so much read and studied by young gardeners in so many parts of the country. They by their letters seemed quite eager to equal if not excel those who have gone before, and I hope they will succeed. I feel the subject is of so much importance that I am constrained to revert to it, the more so because there are many more young men now than there are vacancies for them, and this being so the selection is greater, and only the best can succeed. I wish to point out the requisite habits to be formed, and the course to pursue to enable young men to attain the end they desire, and become better and more successful gardeners than the old, as it is only on this being accomplished that the high character of British horticulture can be maintained.

Young gardeners occupy no mean position in the horticultural world; many of them would grace any calling, but, of course, there are exceptions in this as in all other pursuits. Many good young men may get disheartened from what may appear to them to be bad luck. Some may think there is no use in striving, and consequently relax their exertions in favour of others less worthy; but my firm conviction is, that gardeners, like others, ultimately find their level, and, if a deserving man is superseded by an unworthy one for a time, matters will be reversed in the end. I could name many instances of this; but in reality gardeners, and especially young gardeners, have their failure or success in life entirely in their own hands. Friendly influence is all very good, and indeed very desirable, but where the ability is wanting all this goes for naught. Where there is ability friends and influence are easily had. The first is the only true means of insuring the latter. Perseverance and consistency in all things will almost invariably secure both.

I have been looking over some back numbers of the *Journal*, and I have never seen better advice given to young gardeners than in a short paragraph from Mr. Gair at page 139, February 20th, 1879. It should be clipped out and fixed in the most conspicuous part of every young gardener's lodgings. First, "they must read." In their spare time no employment could possibly be better than this. In reading much will be immediately gained, and much saved in not devoting precious time to less worthy objects. Next, "give heed to what you are

told." This implies much. One who gives heed to what he is told generally remembers it, and this is storing-up knowledge, which is easily carried and always useful. But giving heed to what is said also includes obeying orders. This is what all gardeners should study to do from first to last. It is natural to suppose that head gardeners have more knowledge of their profession than under gardeners have; at least, if they have not, it is the under men's duty to do as they are instructed in their daily work, whether this may appear to them right or wrong. Many gardeners have their own particular ways in doing things, and as they are responsible let them be obeyed. Many head gardeners, too, find it to their advantage to pay attention to what is said to them from higher quarters, and here it is their duty to obey as implicitly as in the former case. This is a difficult matter to get over, as most men have certain ideas of doing certain things better than others; but keep those ideas in the background until asked for. Of course, where anyone, head or under gardener, is allowed to do things without being instructed in any particular way the case is different.

"Learn to be punctual to time." This is one of the main-springs of success. Those who keep no regular time are always behind with their work, and an idle or bad time-keeping man can never be trusted; like those with other careless habits, they must fall beneath those industriously inclined. "Do not mix play with work." This is excellent advice, and is needful, for undoubtedly there are those who indulge in the bad habit indicated; and this much may be said about it, that those who are always more ready for a "lark" than their duties may live to see their folly. By attending to a few of these simple rules at first it is surprising, and certainly very gratifying to all concerned, to see how young men become absorbed in their work, and the information they gather in connection with it.

Young gardeners who make anything else but gardening their first consideration would be much better out of the profession altogether, as in time they become a great burden to themselves and an annoyance to all connected with them. They are the kind of men who think others are getting on before them, and that they are not done justice to, when in reality it is only the fruits of their own conduct they suffer from. The young man who is punctual to his work at all times, goes about it smartly, attends to his day and night duties assiduously, and does his work when his superiors are not present the same as if they were, is the man who will soon win the confidence and esteem of all both above and beneath him. It is by such conduct as that, that stepping stones are being laid on the way to the best head gardeners' places in the country.

Foremen should be most particular in pushing forward everything entrusted to them, remembering that this not only qualifies them for further advance, but their success when once in charge for themselves depends a good deal on it. Above all, young gardeners should never be above their work, whatever this may be. Those who cheerfully take a rough or a dirty job only show their anxiety to improve themselves in all things. It has often been said, "All work and no play makes Jack a dull boy," and this is quite correct; but I do not ask anyone to have his nose continually on the grindstone, neither will any head gardener keep those under him so who do their work conscientiously. Such men have never any

difficulty in getting away a day to see a neighbouring garden or any sociable entertainment which may occur. In the summer evenings recreation may be properly indulged in; but remember this, Do not make any games a hobby—always keep them secondary. "Duty before pleasure" is an old rule, and a golden one.

In reading peruse gardening books and papers, such as the *Journal of Horticulture*, first, newspapers afterwards, and light literature only at intervals. Music practice, when kept in its place, is a harmless amusement, and young gardeners may be welcome additions to the choir; this will afford practice on one or two evenings a week, as well as bring up young men to a good and commendable habit on Sundays. The drunkard or debauchee of any kind will too soon find his mistake.

In concluding these remarks I may just remind young men that it is from personal observation and experience that I write—not from imagination; and I may say, as before, there is abundance of talent amongst young gardeners of the present day. Let those willing to use it for the good of the cause be brought to the front, and those who are inclined to be idle or careless must fall behind.—A KITCHEN GARDENER.

VALUE OF A NORTH WALL.

PLANTS and trees suffer most when exposed to extremes of temperature, and it is quite in vain that we plant our most cherished favourites by sunny walls and in cosy nooks if we are unable to screen them from alternations of excessive heat and cold. Foliage and blossom brought forth early under the influence of the sun's kindly rays are so tender that a single untimely frost will blast them, and the promise and hope of an entire year will be lost; there is, therefore, considerable risk of loss among the trees of a wall facing the sunny south unless ample means of protection are within reach.

Trees trained to a north wall are not subjected to such changes; the lower but more equable temperature of the wall surface and the air in which the branches grow render them more hardy and much less liable to suffer from sudden changes of weather, agreeable and most important evidence of which is afforded in the abundant crop of fruit that such trees usually produce. Late Plums, Cherries, and Currants are usually grown against this wall; but I have also planted three trees of Green Gage, and others of Purple Gage, McLaughlin's Gage, Reine Claude de Bavay, Transparent Gage, with Coe's Golden Drop and Blue Impératrice, and find all the Gages answer so well that the season of this delicious fruit is materially prolonged. Green Gage ripens its fruit first, then comes the delicious and larger fruit of McLaughlin, followed by the still finer Reine Claude de Bavay. Coe's Golden Drop and Blue Impératrice seldom fail to crop heavily upon this wall, and the fruit of both sorts is very valuable, not only when picked from the tree, but also for several weeks afterwards if kept in a warm dry room. Nobody who has tasted a Blue Impératrice that has been left hanging upon the tree till it became shrivelled is likely to forget its delicious richness.

Of Pears I have only been able to try Winter Nelis, Thompson's Marie Louise, and Williams' Bon Chrétien, all of which answer well, the fruit of Bon Chrétien being much valued because, like the Gage Plums, it ripens so late as to make a good succession to that of trees fully exposed to the sun. This fact is worthy of attention in relation to other sorts of Pears as well as this old favourite, for it is notorious how uncertain Pears are in the time of ripening, many of the later sorts often coming to maturity too early, which renders any means of prolonging the process of ripening doubly valuable. It will be well, therefore, next November to plant cordons of favourite sorts in every available space on the north side of walls and buildings, and thus turn to account many an out-of-the-way position that is but too often left unoccupied.—EDWARD LUCKHURST.

CHINESE PRIMULAS.

THERE are but few owners of small greenhouses and frames, or even the latter alone, who do not endeavour to grow a few Primulas; but I am afraid the majority fail to have them in perfection. This is to be regretted, seeing how when well grown they will brighten the houses and windows at the dullest time of the year. Although a rapid improvement has been effected with the strains of Primulas, probably in most instances among the classes for whom these hints are intended the only variety that can be afforded is what is obtained in a mixed packet, or a packet each of some-

body's unapproachable strains of red and white Primulas. In good time it is to be hoped a half-crown, or at the most five-shilling packet, will comprise all the undoubtedly novel, superior, and distinct varieties. Their culture is really not difficult, as beginners will discover if they strictly follow the advice invariably given in these pages at sowing time by various successful growers. It is of no use, however, to read the article at the time, losing sight of the number containing it, and gradually forgetting the primary details. Better by far file the number and refer to it when assistance is most required.

One of the greatest mistakes made in Primula culture—and this is not confined to amateurs, but is more often committed by professional gardeners—is sowing seed very early, say in February or March, the aim being to have strong plants in bloom early in the winter. No doubt in many instances fine plants are grown; but how much better is the result of sowing seed in May, and even in June, and growing on the seedlings without any check till blooming time. In the former case the blooms have to be pinched out once or twice as being premature, whereas this is unnecessary in the case of those late sown, thereby securing a splendid pyramid of bloom, the central truss always being the most vigorous. Then, again, early-sown plants often, unavoidably it must be admitted in many instances, become root-bound and impoverished, from which they do not readily recover when repotted. Those late sown are generally in a proper condition for their final potting at a time when other work is less urgent—viz., early in August.

Supposing some of the readers of these remarks have their plants in this stage of growth—that is to say, well rooted in 60-size pots, I should advise them to at once shift the plants into either 5-inch or 6-inch pots. This is the most critical operation, everything really depending on it. A great per-centage of plants annually die when they ought to be at their best, and this I am convinced is entirely owing to faulty potting. It is the stems that are usually affected by canker, the lower leaves first failing, then the flowers lose colour, flag during sunshine, and finally the plant fails entirely. All this is owing to high potting, and this must be apparent to those who, losing plants one season, pot high next season, thinking it the best remedy. By exposing the stems we invite the disease, and the only remedy is to pot deeply—that is to say, to bury the stems up to the base of the first strong leaf-stalks. This will obviate the use of pegs to steady the plants, and will also strengthen them, as the buried stems will emit roots freely. The orthodox compost consists of three parts of good turfy loam roughly broken with the hand, one of sifted well-decomposed manure and leaf soil, with a liberal addition of silver sand. If the loam is not turfy a greater proportion of leaf soil should be employed, and a little rather fine charcoal or broken crocks in order to keep the whole porous. The pots ought of course to be clean and well drained, covering the crocks with a little moss, especially if fine soil is of necessity employed. The soil ought to be in a moist state, and the fresh soil must be made somewhat firm about them.

The best place to grow Primulas is a frame sloping northwards, and the plants should be as near the glass as possible; keep them rather close till established, shading from bright sunshine, and water them as required. To grow them a long way from the glass and to shade heavily naturally draws and much weakens the growth. A sturdy healthy growth will produce blooms of the best quality. The temperature of the flowering quarters, if it can be avoided, ought not at night time to fall as a rule much below 50°, neither should the plants be crowded or the soil be allowed to become dry. Occasional moderate supplies of liquid manure will insure large blooms of the richest colour.—W. I. M.

NEW PEAS.

DAY'S SUNRISE PEA.—Observing the inquiry of "G. S., Sandbeck Park," as to whether there can be two varieties of the above Pea in commerce, I have forwarded by this post one each of pods containing severally four, five, six, seven, and eight peas in a pod. The average pod with me is the one containing six peas; the quality and size you will be able to judge of from the samples sent. The haulm averages 3 feet to 3 feet 6 inches, grown on rich soil sloping to the south with an inclination slightly to the east. Sown March 17th; first possible gathering July 12th. If "C. H. P." at Cardiff grew them 5 feet high, and gathered on June 20th, it is very evident that the query of "G. S." is a most pertinent one; and I would suggest that "JOURNEYMAN" should send some of his with nine and ten in a pod, and that "C. H. P." should also send you some of his pods to enable you to decide.

CARTERS' STRATAGEM.—This Pea is bearing well with us. It has fine large pods, the average height of the haulm being

18 inches. It seems to need rich soil, which may be a drawback to its adoption by market gardeners who can scarcely afford to apply manure heavily for Peas, otherwise it seems a most suitable variety.—CHARLES BARNES, *Lichfield*.

CARTERS' STRATAGEM PEA.—"CLERICUS" (page 69) asks for information about this Pea, and as we have grown it for three years I will gladly tell all I know of it. It was not offered to the public for the first time this spring as "CLERICUS" says, but it was sent out last year, and this must be the second season of its general cultivation. As a main crop Pea I value it very highly indeed. It grows from 2 to 3 feet high, and is very robust in character; the pods are produced in great numbers, each containing from eight to ten peas of a beautiful dark green colour. The flavour is very superior and quite in keeping with its other good qualities; the pods are very even in size, and they fill well. If fairly dealt with it is a Pea capable of giving every satisfaction, no matter by whom cultivated. Possibly the Pea which "CLERICUS" means as having been sent out this spring is Carters' Pride of the Market, and if so I may say it is in every way worthy of being associated with Stratagem.—J. MUIR, *Margam*.

THIS Pea will not disappoint your correspondent. It is an excellent variety, and will when well known probably be grown in every garden. It is dwarf, not more than 2 feet 6 inches high, remarkably strong, and laden with pods equal in size to Telephone or Telegraph. The pods with me have filled well, having from eight to ten peas in them; the quality when cooked is sweet and good, in fact all that can be desired to constitute a good Pea. Stratagem in every respect fully justifies the raisers in giving it a high character, which it really deserves. It is at least ten days earlier than John Bull, and a few days later than Telegraph. I sowed on April 28th, and Peas were ready for gathering about the end of July.—A LANCASHIRE GROWER.

SHADING CAMELLIAS.

YOUR correspondent Mr. Muir appears to be rather dogmatic in his views on this subject. The inference to be drawn from his article on page 75 is that he is right and everybody else is wrong. His idea concerning his own plants may justify his assertion, but a wider margin should be left for others than Mr. Muir appears disposed to allow. His plants may be doing well, but many cultivators, especially amateurs, have Camellias, perhaps, not in the best health and condition. Would Mr. Muir recommend such to be grown under the influence of a burning sun? or would he advise a little shade until the plants were restored to health and vigour? If shade only in this case would prove beneficial, then the remarks of your correspondent may mislead. I am no advocate for excessive shading so that injury will result therefrom; but with Camellias shade judiciously employed is beneficial, especially when they are making their growth, and again when the flowers are unfolding in spring, or the sun soon takes the colour from them. The young leaves are very tender when first developing, and if the direct rays of the sun are screened from them they are not so liable to injury. Your correspondent must not think he is the only cultivator who has tried growing these plants without shade. I have tried, and to my sorrow had a number of leaves burnt. Shading in the end had to be resorted to, and I found it safe and beneficial to the plants. When planting out a number of Camellias when growing your correspondent says they cannot be done without some injury to the roots: will not shading then be of service to the plants? or will they recover better under the influence of direct sunshine?

To prove that Camellias do well even under dense shade, I know a collection in large tubs always grown under the shade of Vines, and no plants could look better, and they never fail to flower profusely. Further, I have Camellias covering the back wall of two Peach houses. The Peach trees are trained close to the glass and nearly to the top of the house, so that very little sun reaches the Camellias. These never fail to do well, and I am convinced they would be worse rather than better if the Peach trees were removed. Again, the shrubs grown in the house devoted to them here, with the roof and front shaded, have foliage, I am sure, as fine in size, brightness, and colour as it is possible for your correspondent's to be. He contends it is impossible for them to have fine, dark, glossy foliage when grown in the shade. I can only say if those grown at Margam Park are finer in colour and foliage than the plants grown here, they are indeed really grand.

Now to the time of planting. Your correspondent recommends removal of Camellias when they are just advancing into growth. Their roots are then active, and it is next to impossible to turn them out of large pots or tubs without considerable damage to the

roots, which must affect more or less the growth. I consider there is no better time for lifting, planting, or repotting than when growth is completed and the flower buds have commenced to form. The roots are then less active, and consequently less liable to injury, than if in an advanced stage of growth. When planted after growth is completed and the flower buds are swelling, their roots are sufficiently active to enable the plants to get a good hold of the soil before root-action ceases. The plants are then ready, when the growing season arrives, to make a vigorous growth—much more so than if planted as growth commences and left unshaded, to get over the injury as best they can. It may be asserted that the buds are in danger of falling when the operation is carried out in the autumn of their growth, but if judiciously done before the buds are too far advanced a good crop of flowers is certain.

Mr. Muir objects to withholding water after the flower buds of Camellias are visible, and evidently has the same strong ideas on this phase of culture as he has on shading. It is necessary to keep them drier at the root if a second growth is to be prevented on young vigorous-growing trees, and I maintain it is necessary to prevent this second growth, which, according to Mr. Muir's idea, is an advantage, in order to obtain a succession of bloom. When second growth is made is it sufficiently ripened in many seasons to produce fine flowers? If this is so in Wales it is certainly not the case in many parts of England. A succession of flowers can readily be maintained by selection, and even a limited number of varieties. It is unwise to encourage a second growth in the cultivation of Camellias without size of the plant is the chief object and the blooms can be sacrificed.

I am sending, Mr. Editor, for your inspection wood of Camellias—No. 1 from beneath Peach trees, densely shaded; No. 2 from plants judiciously shaded; and No. 3 from a plant that has been much exposed to the sun. I should like to know how they compare with others that may be sent you from unshaded trees.—W. BARDNEY.

[We have no others to compare them with. No. 1 is remarkably fine, the foliage being deep green, glossy, and spotless. No. 2 has thick, leathery, very dark green shining foliage that we have never seen surpassed. No. 3 has large foliage, but it is thinner than that of the others, and lacks the rich glossy hue for which they are remarkable. All the growths are short-jointed, and have healthy flower buds.—ED.]

THE VAGARIES OF PLANTS.

HAVE any of your readers noticed the whims or vagaries of plants to grow from seed in the most unlikely or unwished-for places? Some years ago I carefully sowed some Portulaca seed in accordance with the best directions as to soil, silver sand, and the comforts of a hotbed, but with a lamentable result. The following year to my surprise I found some seedling Portulacas coming up of their own will amongst the cobble stone pavement of the enclosure or yard where I had my hotbeds. Since then I find that some plants will grow on my limestone-chipping garden walks from self-sown seed, whilst they decline to grow in the adjacent borders enriched by manure. I remember some thirty years ago going to an old garden not far from where I now live, and finding a man busy "paring" the Gentianella from the garden walks. It had left the borders where it had been planted as an edging, and had grown over the surface of the walks, and encroached so far that it had to be "pared" off to make the walks passable.

The inference I draw from the above is that we injure many of our garden pets by coddling and overnursing. I have no hesitation in asserting that the "Verbenas" have been lost to all practical purposes by the system of forcing for cuttings for the million. Herbaceous Calceolarias were in a fair way of following the Verbenas, but fortunately for them it has been found out that, instead of being coddled and treated as a consumptive patient in a sort of warm sanatorium, they do best in a cold bed, in a frame, or even with only the comfort of a handlight to protect them from extreme frost.—G. O. S.

SWARMS OF CATERPILLARS.—A correspondent of the "Entomologist" notes, that in various parts of the New Forest the Oaks appeared to be completely denuded of their leaves by the middle of June, the result of the presence of caterpillars principally belonging to the genus *Hybernica*. "The incessant rasping noise of countless thousands of jaws was distinctly and strangely audible." In the vicinity of London there has been observed this season an excessive number of the caterpillars of the Vapourer Moth (*Orgyia antiqua*), many of the larger boughs of the Limes

in St. James's Park being stripped by them. It is to be hoped the authorities will have a careful search made for the egg patches now being deposited. The abundance of the Yellow Underwing Moth (*Triphaena pronuba*) in many places indicates that the caterpillar must have been previously plentiful, and possibly this species has had to do with the failure of the Cabbage crops in some northern districts, as well as the fly *Anthomyia Brassicae*.—J. R. S. C.

NATIONAL GOOSEBERRY SHOW.

THIS was held in the Royal Botanic Gardens, Old Trafford, Manchester, on the 1st inst. The respective prizewinners with the names and weights of the varieties that were exhibited are as follows—

			dwts.	grs.
John Riley	Premier prize red	Rover	29	0
Faithful Jameson ...	" " yellow.	Ringer	24	8
Samuel Birchenall...	" " green.	Shiner	22	3
William Massey.....	" " white.	Transparent ...	23	9
Edmund Salisbury ...	Red Stewards' prize.	Lord Derby.....	24	22
George Beckett	Yellow " "	High Sheriff ...	22	12
Hamlet Foden.....	Green " "	Harriett	21	2
William Heath	White " "	Antagonist.....	22	10
John Fisher.....	Red " "	Maccaroni	24	6
John Torkington ...	Yellow " "	Leveller	20	22
Alfred Tomkinson...	Green " "	Surprise	20	15
James Threlfall	White " "	Hero of the Nile	22	8
Charles Leicester ...	Red " "	Blucher	23	6
James Warburton ...	Yellow " "	Thatcher.....	20	0
John Bennett.....	Green " "	Telegraph	19	10
John Boote	White " "	Faithful	20	11

RED.

John Riley	Rover	25	3
Faithful Jameson	London	24	10
Hamlet Foden.....	Ploughboy	24	0
James Threlfall	Lord Derby.....	23	14
Edmund Salisbury.....	Bobby	23	6
George Beckett	Red Jacket.....	22	20
Charles Leicester	Blucher	22	14
William Heath	Dan's Mistake	22	0
John Fisher.....	Maccaroni	21	23
Faithful Jameson	Lion	21	15
John Fisher.....	Magenta	21	12
Charles Leicester	Falstaff	21	0

YELLOW.

John Riley	Ringer	26	0
Edmund Salisbury	Leveller	23	12
Faithful Jameson	Drill.....	22	16
William Heath	High Sheriff ...	21	12
Hamlet Foden.....	Lady Haughton	20	22
John Fisher.....	Mount Pleasant	20	18
Faithful Jameson	Lady Popham	20	12
George Beckett	Pretender	20	10
Alfred Tomkinson	Garibaldi	20	0
Edmund Salisbury	Mr. Boocock ...	19	22
William Heath	Catherina	19	18
James Warburton	Thatcher.....	19	4

GREEN.

Faithful Jameson	Shiner	25	6
Faithful Jameson	Surprise	22	20
George Beckett	Plunder	22	0
George Beckett	Seedling		
Samuel Birchenall.....	Empress	21	18
Edmund Salisbury	Stockwell	21	6
Samuel Birchenall.....	Hospool	19	20
Hamlet Foden	Souter Johnny	19	19
John Bennett.....	Matchless	19	18
John Fisher.....	Telegraph	19	0
John Fisher.....	Diadem	19	4
Alfred Tomkinson	Seedling Mag-		
James Threlfall	num Bonum	18	17
	Cheerful	18	6

WHITE.

Faithful Jameson	Princess Royal	23	10
Hamlet Foden	Antagonist ...	23	0
William Heath	Hero of the Nile	22	10
Faithful Jameson	Apology	22	0
George Beckett	Transparent ...	21	12
Hamlet Foden.....	Fascination ...	20	0
Alfred Tomkinson	King of Trumps	20	2
John Riley	Peto	19	18
George Beckett	Seedling	19	10
James Warburton	Miss Chesters...	19	10
James Warburton	Careless	19	6
John Bennett	Overseer	19	0

dwts. grs.

TWINS OR TWO ON ONE STEM.

James Warburton	Red	Lord Derby.....	39	18
James Threlfall	Yellow	Ringer	31	18
Faithful Jameson	Green	Sandy	31	12
George Beckett	White	Antagonist ...	31	12

DISH OF TWELVE BERRIES.

Faithful Jameson	London
Alfred Tomkinson	Lord Derby
George Beckett	Maccaroni
Hamlet Foden.....	Dan's Mistake
James Warburton	Leveller
Charles Leicester	High Sheriff
John Torkington	Garibaldi
James Threlfall	Leveller

GREEN.

John Bennett	Telegraph
Charles Leicester	Shiner
William Riley.....	Stockwell
James Threlfall	Surprise
Faithful Jameson	Transparent
George Beckett	Succeed
James Threlfall	Hero of the Nile
Charles Leicester	Careless

Mr. Thomas Bradley, Congleton, is the Chairman, and Mr. Charles Leicester, nurseryman, Macclesfield, is the Secretary of the Society.

BLANDFORDIAS.

THESE greenhouse plants are scarcely known by the young men in our gardens at the present day. This is scarcely to be wondered at, as in few gardens can any of the varieties be found. It would not be difficult to at once point to the principal cause of disarding such plants—namely, the rage for novelties. I am, however, inclined to believe that Blandfordias will probably ere long rank as popular plants.

The negligence in cultivating this genus is the more regrettable, because Blandfordias are suitable plants for amateurs who have only a greenhouse. The temperature usually given to a greenhouse suits them admirably, and their culture is easy. No one need fail in their management. The flower scape, which rises above the foliage from 1 to 3 feet, and then produces a terminal cluster of drooping flowers. The time of flowering varies according to the temperature given the plants in their various stages of development, but as a rule the flowers are produced about the end of June or during the month of July. After flowering they require attention, and the present is a good time. They are propagated by division and from seed. To obtain a stock by the former method would entail a considerable length of time, as suckers are produced very sparingly. When they are produced, however, they should be taken off after flowering, placed singly in small pots, and be given an intermediate temperature until established, and then wintered in the greenhouse. The stock can be obtained more readily by seed, which is produced freely if a little care is taken during the time the plants are in flower by keeping them where the atmosphere is moderately dry, otherwise artificial fertilisation is necessary. It is, however, wise to give this aid under any conditions. When the seed is ripe it should be sown at once in a small pan or pot well drained, covering the drainage with moss or other suitable material, and when the seeds are sown they should be lightly covered with soil, watered, and placed in heat. The pan should be covered with a square of glass and well shaded until the seedlings appear. When large enough they should be placed singly in 2 or 3-inch pots, and be grown in an intermediate temperature, finally transferring them to 5-inch pots, and subjecting them to the same treatment as established plants.

Blandfordias look well when well grown and flowered in 5-inch pots, which are large enough unless the plants are allowed to grow with more than one crown. When the object is to grow a good-sized plant the suckers should be allowed to remain instead of being removed to increase the stock. After the plants have flowered they should be repotted and divided if necessary, disturbing the roots as little as possible. If the roots have to be much disturbed in carrying out the operation it is wise to keep them close for a short time. I have potted these plants at different times, but find the operation best performed at this season of the year. A little care should be devoted to the supply of water after they are first potted, and as autumn approaches and the growth is completed less water will be needed. They should not be stored away under the stages or placed upon shelves to be neglected during winter. They will do in any place under glass

during winter where the temperature does not fall below 35° to 40°. During winter little water will be necessary, but it must not be entirely withheld. In spring they can be assisted with a gentle heat if convenient. But even this is not absolutely necessary. The plants here are only subject to a greenhouse temperature all the year, and flower profusely about July. When the pots are full of

roots and the plants are growing, stimulants may be given with advantage, as well as liberal applications of water.

The soil most suitable is good fibry loam and peat in equal proportions, with a few pieces of broken charcoal and plenty of coarse sand. I am confident if amateurs will only give these plants a trial they will not be disappointed with the results.



Fig. 21.—BLANDFORDIA PRINCEPS.

Blandfordia nobilis has rich orange-coloured flowers shading to yellow at the edge. *B. aurea* has golden yellow flowers; and *B. Cunninghamii*, which is a very beautiful variety, has flowers of rich coppery red, while the upper portion is yellowish green. *B. princeps* I have not yet flowered, but am informed it is a very fine species.—W. BARDNEY.

[*Blandfordia princeps* (represented in fig. 21, a block kindly lent us by Mr. W. Bull), is very handsome, and is thus described

by the introducer—"This strikingly handsome greenhouse perennial gained the first prize as the best new flowering greenhouse plant at the Royal Horticultural Society's Exhibition in the summer of 1875. The stiff, sub-erect, distichous leaves are narrowly linear, five to eight-ribbed, and with a serrulate border. The scape is a foot high, bearing a corymb of many flowers, which are 2½ inches long, pendent; regularly funnel-shaped, with a bright crimson tube, and deep golden yellow erect limb. It

must be regarded as the most beautiful of the Blandfordias yet known. It has been figured in the 'Botanical Magazine,' t. 6209." The coloured figure mentioned above by Mr. Bull faithfully represents the character of the plant.—ED.]

THE FRUIT CROP IN THE SOUTH OF IRELAND.

SPEAKING generally, and taking the gardens in this vicinity, the following is a pretty accurate summary of what came under my notice lately when walking or driving over much of this province.

Strawberries.—Although this crop is past, I may note that on the whole it was above the average. President still maintains its reputation as not only one of the largest but also among the earliest and best flavoured. At the Lismore Show it was, however, second to James Veitch from the adjoining gardens of the Duke of Devonshire, and was a week behind Marguerite at the gardens of Lord Donoughmore, Knocklofty. British Queen, La Grosse Sucrée, and Vicomtesse Hericart de Thury are still favourites, as well as Trollope's Victoria, the Old Pine, and Elton Pine at Rathronan, Marlfield, Minella, and Heywood.

Gooseberries, Raspberries, and Currants.—These, with the exception in a few cases of Black Currants, were more than an average crop. The amber Gooseberries came in first, and the large green, such as Thumper and Pike's Green, followed, but are now nearly over.

Apricots and Nectarines.—At Marlfield a few days since I saw a very fair crop of the former nearly ripe on a south wall unprotected. I note this, for as a rule for several years both these fruits failed, so far as I saw, in the open air in Ireland. If I remember aright this early Apricot was Blenheim or Shipley.

Plums.—At Glenview, Marlfield, Minella, and Lismore Castle there are more than average crops, specially noticeable being White Magnum Bonum, old Green Gage, Denyer's Victoria, Goliath, and Coe's Golden Drop. At the first-named garden, owing to careful pruning and judicious summer pinching, both wall, bush, and espaliers are more than a full crop. Too little attention often seems to be paid this fine fruit tree. Allowing it to take care of itself will not always conduce to success.

Peaches.—Of indoor Peaches that came under my notice the heaviest yield was at Knocklofty. So heavy was the set of fruit that the head gardener, Mr. Ryan, assured us, as we could see, that to prevent exhaustion a dozen was removed for every one allowed to remain. Of wall trees protected by glass during the setting period, Minella, the residence of Mrs. Malcomson (head gardener, Mr. Crehan), near this town, not only this year, but for the last dozen or more, outdistances anything I have seen in Peach-growing. The nearest approach would be that of Mr. Braeken, the very successful head gardener to E. P. Westley, Esq., Roebuck Castle near Dublin. Mr. Braeken assured me he used no glass. I specially mention those cases, as I am aware that at Woodstock Park, Co. Kilkenny, the residence of Lady Louisa Tighe, and many other typical gardens, outdoor Peaches have been for years a failure, and in numberless cases their culture has been wholly abandoned. Sashes, glass copings, and similar contrivances conduce much to success; but nothing will make old bare stems prolific, while a bad unprepared subsoil is, though not suspected, a frequent source of failure. Grosse Mignonne, Royal George, and Palmerston are still the favourites in most instances.

Pears.—Speaking within the limits of observation indicated, the crop as a whole is much above an average. At Marlfield and Summerhill I saw a few days since old trees that were destined for the axe producing enormous crops on walls 15 feet high; and this induces me to remark that one or two seasons' failure should not cause a fine old tree to disappear which may yet make amends. There are twenty varieties of Rivers' best, both standards, espaliers, and on walls at Glasnevin, and with few exceptions, probably not owing to variety or seasonal causes, all bear fair crops. And here I should like to ask why espaliers are so seldom seen: they take up little space, and, owing to full exposure and fresh open soil, the fruit is generally of fine size and quality.

Apples.—Of Lord Suffield there is an excellent crop. Mère de Ménage is also bearing heavily at Glenview. Hawthornden, good generally. Pearson's Plate and Ribston Pippin equally so. Sturmer as a bush at Minella is very fair; while the following are more than average—Kewswick Codlin, Lemon Pippin, and Cox's Orange Pippin; and last, but in several instances the best, the Alfriston, which with the three first named are deserved favourites.

I must step aside to observe what every Irish well-wisher will be proud of—so far there is no Potato blight in Ireland.—W. J. M., Clonmel.

ANNUAL POPPIES.—These are well worth a place where they can be left undisturbed in any position. For the last six weeks

we have had some amongst Canterbury Bells. The colours range from dark purple and crimson to the lightest shades and white, and the forms of the flowers are varied and many of them extremely pretty and effective. The Dwarf French, Carnation-flowered, and Pæony-flowered are the sorts I bought and sowed, the latter being not so well worth growing as the others. When some old and very large Laurels which had become decrepit and unsightly were cut down a few years back, the ground underneath became covered with Poppies, evidently varieties of *Papaver somniferum*, and quite distinct from any I have bought. Many of the flowers are like Tulips in their markings and colours.—R. P. BROTHERSTON.

HERBACEOUS AND ALPINE PLANTS.

ACONITUMS.

THE Monkshoods must be reckoned amongst the old-fashioned flowers. They contain a powerful acrid poison in their juices, which has not been favourable to their increased cultivation. Their juices are used to poison arrows for offence and defence in various parts of Asia; in Britain, however, the roots have brought pain and death to many by being dug up by the ignorant and used as Horseradish. As a member of the Crowfoot family it is distinguished by its five petaloid sepals, the posterior one being large and developed into a hood or helmet covering the corolla, which consists of two large hammer-shaped petals hidden under the helmet, and of several other smaller and unequal ones which are quite inconspicuous; they have numerous stamens, and the fruits consist of from three to five sessile follicles, which are many-seeded.

Aconites are bold-growing plants, and when left undisturbed for several years attain goodly proportions, and then display their handsome panicles of flowers to great advantage; they also recommend themselves to the attention of the gardener and amateur, inasmuch as they thrive under the shade of trees as well as many, and far better than most other plants. In dividing the roots for increase, or simply to reduce the size of the clump, the pieces of root cut off should be at once burnt in order to prevent accidents by misadventure. There are a great number of species and varieties, the most desirable of which we include here.

A. Anthora.—This species belongs to the fibrous-rooted section, and is almost harmless, although we look upon them all with suspicion. It attains a height of about 18 to 20 inches. Root leaves multifid, with linear acute dark green segments; flowers pale yellow, produced in dense panicles. It blooms during July and August. Pyrenees.

A. autumnale.—A beautiful showy plant usually confounded with *A. japonicum*, from which, however, it is abundantly distinct as a garden plant. It is robust in habit, usually attaining a height of about 3½ feet. Leaves palmate and downy; spikes simple; flowers large, lilac, and white or lavender blue. It flowers during the autumn months. China.

A. cammarum.—A stately plant for the back part of the border. As an autumn decorator it grows some 3 to 4 feet high, the leaves being palmatifid and deeply divided. Flowers rich deep purple, produced on rather lax panicles. July to September. Austria and Switzerland.

A. heterophyllum.—In this plant we have an instance of the poisonous properties of the family being changed into a useful tonic, the root being used to promote digestion, &c., so that we may look upon it as a converted member of a dangerous family. It is a robust-growing plant, about 2 feet in height. Leaves petiolate below, sessile above, broadly cordate, coarsely toothed at the edge, and deep green; flowers large, numerous and dense, pale yellow, and deep blue in front. August. Himalaya Mountains, 8 to 13,000 feet elevations.

A. japonicum.—This is a somewhat slender plant, producing numerous branches, and seldom exceeding 2 feet in height. It is an old garden pet, having been introduced from Japan nearly a hundred years ago. Leaves palmate and bright shining green; flowers numerous and deep blue. We have seen a white variety of this species. Autumn. Japan.

A. lycoctonum.—This is the Wolfsbane of the merry Swiss boy when he descends to botanise. It is a common plant in the Alps of Switzerland, and forms a pretty object when grown in the border, where it makes itself equally at home as when on its native hills. It attains a height of from 2 to 3 feet, bearing palmately lobed hairy leaves, which are yellowish green; flowers numerous, borne in branching clusters, pale yellow. The shape of the upper sepal or hood is very peculiar: some imaginative minds have compared it to a Welsh lady's hat, others to an extinguisher with an extra development of knob. July and August. Alps of Switzerland.

A. Napellus.—The roots of this plant have in several instances been mistaken for Horseradish, the result of which has been too frequently fatal. This, however, should not banish the plant from the flower border, where it is highly ornamental, but all parts divided from the clump should be destroyed by fire to prevent the possibility of any mistakes. It usually reaches a height of about 3 feet. Leaves palmate, much and deeply divided, segments deep shining green; flowers large and numerous, produced in branching clusters, intense deep blue. It is the common Monkshood, so named from the shape of its large upper sepal. May, June, and July. Europe, Siberia.

A. Napellus bicolor.—A form of the preceding with parti-coloured flowers, blue and white. It is a somewhat more robust-growing plant than the normal type. There is also a pure white form of the species, *A. Napellus albus*.

A. pyrenaicum.—This is a little-known species, and still somewhat rare in gardens. It is a stately-growing plant, attaining a height of about 4 feet, and forms a beautiful object in the mixed border. The leaves are large, palmately divided, and pubescent; flowers large, with conical hood, yellow. June and July. Pyrenees.

A. sinense.—Found in many gardens under the name of *chinense*. It is a dwarf plant, seldom exceeding 2 feet in height, although the growth is very robust. Lower leaves stalked, upper ones sessile; all deeply tripartite, and deep green in colour. Flowers very large, dark violet. September. China.

A. variegatum is a handsome kind, growing some 4 to 5 feet high. Leaves large, with rhomboid segments, and producing panicles of flowers variegated with blue and white. July and August. South of Europe.

A. versicolor.—This species, although last, is by no means the least desirable of those here enumerated; indeed, where only one kind can be grown we should feel inclined to select the present. It is a bold-growing plant, usually about 3 feet high, with dense clusters of very large white flowers, which are broadly margined with blue. August and September. Siberia.—W. H.

GOOD CABBAGE LETTUCES.

As I have repeatedly observed, I am not a great admirer of Cabbage Lettuces, and always give the preference to the Cos varieties, so also do my employers, and for this reason I never attempt to grow the former, only for such times as it is impossible to have the Cos varieties in good condition. I have, however, for some time grown, and strongly recommended others to grow, the Early Paris Market Cabbage Lettuce for the earliest spring crops in frames and near walls, as from February-sown seed plants can be had which heart quicker than any other variety that may have been wintered in frames or in the open. Not only does this variety heart quickly, but the plants are extremely close in growth, excellent in quality, and are much appreciated at the table accordingly.

The one other variety which I can most strongly recommend was grown by me for the first time this season, and is called Suttons' Le Beuf. Sown on a warm border with the Early Paris Market and some good Cos varieties, it formed a good succession to the former, being earlier than the latter. It produces but few outer leaves and the heart is conical-shaped, giving the appearance of being a hybrid between the two kinds. With regard to the quality, I can truthfully assert it to be superior to any Cos variety grown here, being really the most crisp and succulent Lettuce I have yet tasted. I have given some of it to several connoisseurs, and all are of the same opinion as myself with regard to its superior merits.

"A GROWER OF SALADS" asks why I omitted Tom Thumb in my selection (page 74) of Cabbage Lettuces suitable for autumn sowing. As he suggests, I certainly do prefer Suttons' Commodore Nutt to Tom Thumb; as, good as the latter undoubtedly is, it is inferior in point of quality to the Commodore. The latter is very hardy, is deeper green in colour, close-growing, the heart being remarkably solid and crisp. Messrs. Suttons in their catalogue mention that the Commodore Nutt does not so readily run to seed as Tom Thumb, and my experience quite agrees with theirs. "A GROWER OF SALADS," if he gives the Commodore a trial, will not regret having done so.—W. IGGULDEN.

INDIGO, ITS CULTURE AND PREPARATION.—Indigo, as is well known, is a colouring matter which has attracted attention from very early times. Cloth dyed with indigo has been found in the old Egyptian tombs. The method of preparing and using this colour is accurately described by both Pliny and Dioscorides, and the early inhabitants of these islands were well acquainted with indigo, which they obtained from the European Indigo plant,

Isatis tinctoria, the Woad plant or Pastel. With this they dyed their garments and painted their skins. After the discovery of the passage to India by the Cape of Good Hope the eastern indigo, derived from various species of *Indigofera*, gradually displaced Woad as containing more of the colouring matter. But this was not accomplished without great opposition from the European growers of Woad; and severe enactments were promulgated against the introduction of the foreign colouring matter, an edict condemning to death persons "who used that pernicious drug called devil's food," being issued by Henry IV. of France. The chief source of Indian indigo is the *Indigofera tinctoria*, an herbaceous plant raised from seed which is sown in either spring or autumn. The plant grows with a single stalk to a height of about 3 feet 6 inches, and about the thickness of a finger. It is usually cut for the first time in June or July, and a second or even a third cutting obtained later in the year. The value of a crop depends on the number of leaves which the plant puts forth, as it is in the leaves that the colouring principle is chiefly contained. Both the preparation of the colouring matter from the plant, and its employment as a dyeing agent, are carried on at the present day exactly as they have been for ages past. The description of the processes given by Dioscorides and Pliny tally exactly with the crude mode of manufacture carried on in Bengal at the present day. Dioscorides says—"Indigo used in dyeing is a purple-coloured froth formed at the top at the boiler; this is collected and dried by the manufacturer; that possessing a blue tint and being brittle is esteemed the most."—(*Nature*.)

SECOND-CLASS FLOWERS.

FIRST-CLASS flowers are costly, and far too often more than ordinarily difficult to cultivate. The finest Scotch Pansies succumb before the burning sun, and such a July as has been experienced in the southern counties; and even in cool, moist, northern districts they require much skill to grow them to anything near perfection. The finest Auriculas, except in favoured localities, require glass coverings, and pots, and daily attention, in order that superior flowers may be produced. Carnations and Picotees, and even Pinks, need layering and nursing, and special soils and manures, in order to prevent those who grow them disgracing themselves by failing. We need not multiply instances, the facts are not denied. Then leaving out the question of skill and appliances necessary to produce first-class flowers (so-called) there is the, to many, serious matter of first cost: 6s., 12s., or 18s. per dozen for Pansies or Picotees or Roses may be only a trifle to hundreds—the more the better—who delight in their flowers, but to the greater number, who cultivate flowers for the love of them, these same shillings stand in the way of the millions growing first-class flowers. It is not everyone who can afford to buy a collection of Dahlias and find that the expenditure must be incurred annually if the stock is to be kept up. It is too often a felt loss to buy a couple of dozen Hollyhocks and find in a short time that the disease has claimed them, and so on.

We hope our remark will not be misconstrued. We say nothing against those who have skill and money enough to enable them to grow the very choicest gems, and we would feel very sorry were our remarks to lead to their abandonment by a single grower. And we do not expect they will. The florist proper has a way of his own, and is not easily moved by "uneducated" dabblers outside the circle. We wish to comfort those whose skill is small and purse short. It is a great mistake to suppose that flowers to be beautiful must be dear, tender, and ill to grow. The reverse is the fact. No bed of florists' Pansies ever produced such a quantity of beautiful blooms as that one in the artisan's little garden over the wall there, and we doubt if ever florist enjoyed his production more. To be sure he knows nothing of "Glenny's properties," and it is well, for if he did I fear he might enjoy his flowers less. Such is the perversity of human nature. Possibly he might "go in" for florists' varieties—and what then? Probably not more, and perhaps less, satisfaction. Now his wife and bairns can treat their friends to handfuls, and we all know how blessed it is to give.

I wish those who repine because they cannot afford to spend much money on "first-class" flowers could see our doctor's (not the Journal's Doctor) garden in springtime. All along the sides of the walks are hundreds of seedling Polyanthus and Auriculas growing with a vigour that florists' varieties never knew, and producing flowers in prodigal profusion of as fine colours as the named sorts. The doctor is immensely fond of his flowers and proud as well, and many a friendly dispute he used to have with Sandy Macfarlane, a village florist, now, alas! gone into the "silent land." Unless flowers of "florists'" kinds were up to the mark there was no pleasing good, honest, laughing-faced

Sandy. To "take a rise" out of the doctor he would walk round with him and listen to his praise of his beauties, and when they had finished Sandy would take the trusses gathered by the doctor one by one and point out that not one was fit to look at. I once was one of the party, when something like the following passed between them:—"Noo jist look at that; hoo can ye ca' that 'first-class,' man? it's preen-e'd." "Pin—what?" "Preen-e'd." "I see neither eyes nor pins, and I don't want lessons in millinery. Where's the pin?" "That's hit, richt i' the middle." "That a pin! that's the pistil." "That a pistol!—it's a preen." "Pin be hanged!" "Pistol be hanged!" "Well, well, you florists never give in, so I must; but there is no pin in that one." "No, but it's no roond." "Is it square?" "It's neither roond, square, nor oval; it's a perfect frieht." "Oh, get out now, that'll do." Such is a fair example of the never-ending bickerings between the good doctor and his florist friend; and such, in other words, is the gist of the dispute that has ever reigned since florists began to "improve" and to teach.

For a shilling anyone can buy a packet of *Polyanthus*, or *Auricula*, or *Pansy* seed, or indeed almost of any florists' flowers, and from that packet raise hundreds, it may be, of beautiful flowers. True, a few may be "pin-eyed," but the cushion may be none the less beautiful. The markings may be less regular, the form a little less perfect; instead of perfect smoothness there may be undulating edges, and they may not be perfectly "roond;" in a word, they may only be "second-class" flowers in the eyes of a genuine florist, but to you they may be all that is fair and lovely. Against any imaginary deficiency they may have in departing from the recognised standard we may place their cheapness, for sixpenceworth of seed will produce as many plants as could be bought for £5 of fine kinds; their strong constitution—for seedlings are generally much superior in this respect as well as in hardiness to fine named varieties—the profusion of flowers they produce as a consequence of their vigour, and the comparatively little skill necessary to produce them. These recommendations alone ought to commend "second-class" flowers to those who find that their skill or circumstances are not sufficient to enable them to succeed with other kinds.

These remarks apply to every florist flower that we know; but we may also remark that even by such means as we have indicated something approaching "first-class" flowers may be successfully attempted. When a grower has hundreds of plants selection is easy. Plants which have faults may be tossed to the rubbish heap without a pang when we have plenty to fill their places. Then we can save our own seed, and sow in big beds; and when we have thousands of seedlings we can afford to be fastidious, and may then make severe selections, and thus go on ever reaching higher and higher. Moreover, the raising of plants is one of the most fascinating pastimes anyone with a love for gardening can indulge in.

There are many ways of producing with ease "second-class" flowers other than by raising plants from seed. It often happens that named kinds possessing a vigorous habit may be had cheaply, and their culture successfully attempted, for often plants are dear simply because they are scarce, and scarce because they have poor constitutions. Those who have time and skill and an abundance of necessary appliances may go on nursing and coaxing small puny plants which produce particularly prized blooms; but we do not write for those who can afford to do all this, and so we advise them to avoid puny-growing plants of all kinds. It is very common at an exhibition of Pansies, Roses, or Carnations to see enthusiastic but unskilful amateurs taking the names of the most exquisite blooms; afterwards ordering, receiving, and planting the kinds, from which equally fine blooms are expected, but which only bring disappointment. Good constitution is being more insisted on now when plants, flowers, or fruits are presented for certificates; but even yet flowers and fruits are too often certificated on the presentation of an insufficient number of examples. So far as true florists are concerned the evil is perhaps not great, for they generally know what they are doing, but it is very different in the case of the general public. It is not every lover of flowers who has time enough, but those who have would consult their own interests by selecting their plants from the growers and choosing only those in robust health. Satisfaction instead of disappointment would then be the result, for most likely the grower would reap what he had sown.

Not only by these means may "second-class" flowers be made to prove satisfactory, but it would be well for unskilled growers to substitute hardy plants for tender and half-hardy ones, and robust growers for weakly kinds that are in the habit of dying out when extra hard winters visit us. A mere fraction of the expense, to say nothing of trouble required to make a display of *Hollyhocks*, which sometimes under adverse circumstances

disappear altogether, will produce an extravagant display of *Fox-gloves*, which are, we think, even more beautiful than *Hollyhocks*, and when once possessed of a good strain it is difficult to get rid of it: with *Hollyhocks* it is difficult to keep it. In districts where *Pelargoniums* and *Calceolarias* do badly, *Violas* of innumerable shades often prove greatly superior. For a dark crimson bedder in a cool moist climate we find that *Dianthus Napoleon III.* is very much more effective than any bedding *Pelargonium* whatever, that it strikes like a weed in September, and no frost—not even 36°—injuries it. In our northern climate we are greatly adding to the quantity of the flowers and the effectiveness of the beds by dropping tender plants as fast as substitutes can be found. *Arabis albina variegata* makes as beautiful a bed and a better edging, and it is more compact than any variegated *Pelargonium*, while it is "in form" two months longer than *Pelargoniums* in the nature of things can be, while no glass, not even a frame, is needed to protect it. *Dactylis glomerata variegata* surpasses in elegance and effectiveness any other variegated plant, and *Cerastium tomentosum* is not yet equalled. *Saponaria calabrica* on rich soil thinly sown surpasses by far the best bed of *Christine Pelargonium* ever seen. But what need is there to multiply instances? Lists we need not, they have been published in plenty. What we have named are common and are ranked as "second class," but they are not so. It is only fashion, and sometimes want of knowledge, which have put plants not so good as they before them. Slowly but surely we are finding our way back to simplicity and profusion. Slowly but surely we are finding out that lovely and loveable flowers may be had in abundance, even though they may be such as florists name "second class," and such as floral committees would refuse to certificate.—SINGLE-HANDED.

DOMESTIC FLORICULTURE.

VARIOUS agencies are established for promoting a love of flowers and encouraging a taste for gardening pursuits among the industrial classes—the brain and muscle-working population of our land. For the purpose of reporting progress and inciting to further effort in this laudable direction flower shows—domestic shows—are periodically held in different districts of London and other large populous centres. One of the prettiest shows of this nature, inaugurated and conducted under somewhat exceptional circumstances, was held in Shaftesbury Park last Saturday.

Let no one associate the idea with any nobleman's park, where the deer gambol and ancestral trees spread their tinted shadows on the grass. No; Shaftesbury Park is a suburb of London, a sort of model village that was opened by the late Lord Beaconsfield a few years ago, and was named in honour of Lord Shaftesbury, who has laboured so long and so well in the establishment of happy homes for working people. Shaftesbury Park, then, is a park of bricks and mortar, yet of trees and gardens; the latter exceeding a thousand in number. The character of the gardening on this estate was described in the issue of this *Journal* of October 11th, 1877; and it was stated there that prizes used to be offered for well-kept gardens, but the practice had fallen in abeyance, and much of the floral brightness of the district departed.

By a rather singular coincidence the representatives of three horticultural papers eventually either settled on the estate or near it. These individuals determined to do something to foster domestic floriculture, and they took an active part in establishing a Garden Improvement Society. They knew also of others who are earnest in the desire the promoters had in view, and valuable aid was secured. Sir Trevor Lawrence, Bart., M.P., consented to become President; the Royal Horticultural Society's medal was obtained as the "Champion Prize;" funds were collected, a show projected, and rules framed. For the Show, collections of plants and flowers were generously supplied by Messrs. Veitch & Sons, Chelsea; Turner, Slough; Osborn, Fulham; Laing & Co., Forest Hill; Cannell & Sons, Swanley; Ware, Tottenham; Neal & Sons, Wandsworth; and Roger, Battersea Park. Splendid *Liliums* were also kindly sent by Mr. G. F. Wilson; *Gladioluses*, &c., by Mr. J. C. Stevens; and a substantial gift from Mr. James McIntosh. In orthodox language it would be said these contributions added greatly to the effect of the Exhibition; but the fact is, they made it, and it is certain that no floral display in the district has ever equalled the one in question.

Prizes were given for garden and window plants. These consisted of nearly a hundred articles of ornament and utility, ranging in value from £1 downwards; also pottery ware from Mr. Matthews; wire-work from Mr. Thomas, and gardening books from various donors. Some of the gardens were marvellous examples of what may be done in a small space where taste and industry are combined and find expression. The question of economising space and rendering plain articles of utility ornamental about reached its climax in the case of the man who made his dust-bin a work of art, painted neatly, the lid being converted into a box for growing Mustard and Cress; yet even this worthy individual did not win the champion prize.

It may perhaps be well to dismiss the plants with the remark that, creditable as some of them were, it is to be hoped they will be better

next year; yet a show of this magnitude of course demanded high-class judges, and the services of Messrs. Barron of Chiswick, Baker, and Gordon were obtained. Mr. Barron was delighted with the Show, which was a great success, and everyone was satisfied save an eccentric individual—and whoever saw a show without one?—who appeared considerably insulted because he was awarded a first prize. Surely this is sufficiently rare to be placed on record.

Sir Trevor Lawrence delivered an admirable address; he noted with pleasure the aid rendered by the nurserymen, spoke words of encouragement to the local exhibitors, and hoped, what all will hope who read these lines, that horticulture will prosper and pervade all ranks of society, leaving its beneficent impress everywhere.

A POTATO GARDENER'S DILEMMA.

HAVING been in a somewhat similar state last season with Champion Potatoes as "F. S." is now with Magnum Bonum (see page 103), I would advise him to follow my example—viz., to let them remain as they are until say the middle of September, and then see what progress they have made. At about the same period last year my Champions had scarcely any tubers formed, but I let them remain to see what they would come to, and to my great surprise I had a splendid crop of fine Potatoes. In no case whatever should he cut out the haulm while it is green, as that will stop the growth of the tubers at once. I have some Magnum Bonum planted the same distance apart as "F. S.," and they too look very thick, but still I hope to have a good crop by the time they are ready to lift.—JOURNEYMAN.

ALL that "F. S." can safely do in regard to his overcrowded crop is to pull up some of the weakest growths, if weak growths are numerous. He had better let the strong growths alone and "take their chance;" indeed, unless the weak haulms are removed with great care the remedy may be as bad as the disease, as if the strong growths are injured the crop will be injured also. A mistake has been made in planting too thickly, and this against the advice of competent men, for it has frequently been stated in the Journal that the Magnum Bonum and Champion varieties cannot have justice done them unless planted nearly or quite 3 feet apart in the rows: and still your correspondent has ignored the advice and planted at Ashtop distances—2 feet. He may still, however, have a fair crop, but it cannot be of nearly the value it would have been had he taken the advice of experienced cultivators in the spring instead of in the autumn.—A PRIZETAKER.

WERE I in such a dilemma as your correspondent "F. S." (page 103), I should cut out every other row close to the ground, and be very careful not to injure in any way those left. Very few tubers will form under the present circumstances, and they will be very small. It will be no use stopping the haulm, because that will prevent the tubers growing. I should do as I have suggested at once, as there is yet a month for growing, and there will be some hopes for the Potatoes growing to a fair size. It is most difficult to get people to plant Potatoes right; all the early Potatoes that I have planted this year are $2\frac{1}{2}$ feet apart; seconds, $3\frac{1}{2}$ feet; and late varieties in the field, put in with the plough, 4 feet, and 15 inches from plant to plant; and now they are nearly touching each other and look well.—R. R. S. H.

CARNATIONS FROM SEED.

I CAN endorse all your correspondent "J. W." has said on this subject, and would advocate the raising of seedling Carnations where cut flowers are required and borders have to be kept gay. After being disappointed with the quantity of flowers the named varieties produced—one flower spike only being produced on each plant, the majority of the young plants having kept in pots during the winter—my attention was drawn to seedlings. My first lot proved a great success, and every season since I have sown a pan or more of seeds. The percentage of single flowers has been very small with me, not more than half a dozen out of a hundred plants, which was about the number of seedlings obtained out of my first batch. When ordering the seed the perpetual kinds should be obtained, as they are by far the best for flowering, many of them commencing before the named kinds expand, and continuing until cut off by frost.

I think your correspondent has considerably underrated the quantity of flowers each plant will produce raised by layers from strong seedlings. After seeing the notes on page 98, I counted with a friend flowers and buds on the first plant we came at, and it had upon it 233. Is not this the best way of obtaining Carnation blooms when quantities are wanted for cutting purposes instead of trusting to named kinds that produce from five to twelve flowers, beautiful in shape and form, but no better adapted than the others for filling vases?

When flowers are produced sparingly cultivators are almost afraid to waste the buds in cutting, and in consequence have to take them off with short stems of but little service for vase work; but with seedlings good stems can be cut with the blooms, thus sacrificing a few and benefiting the plants.—SCIENTIA.

CHOICE CAMPANULAS.

AMONG many other beautiful Bellflowers one of the newest and one of the best is that of which a flower is so well portrayed in the accompanying woodcut (fig. 22). *Campanula macrostyla*, so

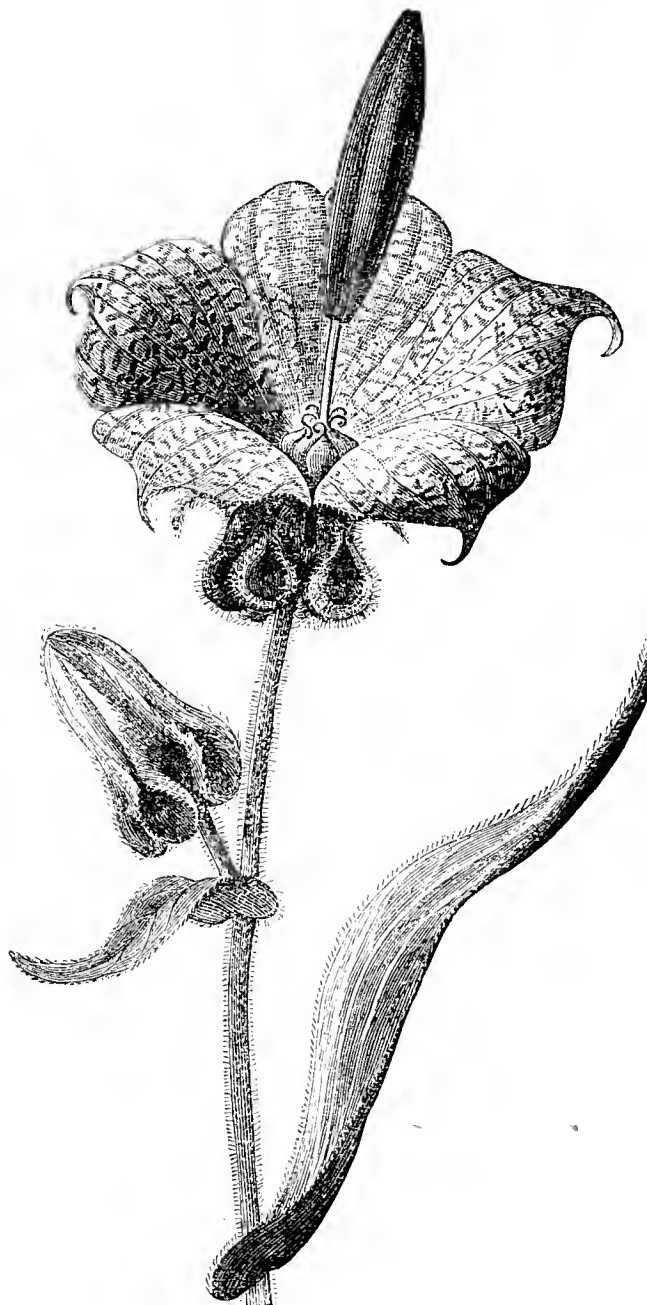


Fig. 22.—*Campanula macrostyla*.

named on account of the extraordinary development of the style, is a native of mountainous districts in Asia Minor, whence a few years ago it was sent to this country. As to who was the fortunate discoverer I have not been able to learn, and if any of your numerous readers who are interested in hardy plants can give me the information I shall be greatly obliged. I think it probably came to England through some of the continental nurserymen, as I do not see any of our own nurserymen claim the honour of having introduced it. The flowers are of the open bell-shaped type, and are prettily veined with a purplish mauve or lilac, but very distinct from the hues characterising the majority of Campanulas. The large club-shaped style when mature expands at the summit into three white blunt lobes, which constitute the stigma. The plant is dwarf in habit, and is admirably suited for a rockery, where it flowers freely during July.—X.

FENNEL FLOWERS.

NIGELLA is a small genus of annual plants. They derive their name from the colour of their seeds, which are used somewhat largely in cookery as seasoning in continental cities; the seeds are also said to be used in the adulteration of pepper. The English

name of Fennel Flower is derived from their finely cut leaves, which bear a great resemblance to Fennel. *Nigella*s well deserve a place in every flower garden. They do not like transplanting, and therefore the seed should be sown in the open border. The first sowing should be made in the end of March, another about the end of May or beginning of June, and if required to flower in the early spring sow again in the middle of September. Thin the plants to about 6 inches apart, four to six being quite sufficient to leave in a group.

N. damascena.—A very handsome plant, bears the strangely conflicting names of Love-in-a-mist and Devil-in-a-bush. It attains a height of about 2 feet, with finely cut bright green leaves. Flowers large, terminal, blue, enveloped or surrounded by a mossy involucre formed with its Fennel-like leaves. There are also a white and double-flowered form of this species.

N. hispanica.—This is at once distinguished from the preceding by the absence of the peculiar involucre surrounding the flower; it is also dwarfer in habit by some 6 inches. Flowers terminal, large and showy, deep blue; the stamens conspicuous and blood colour. From Spain and Northern Africa.

N. orientalis.—Though decidedly inferior in beauty to the previously named kinds, both flower and carpels are curious and attractive. The plant is about 18 inches high. Leaves divided into long narrow segments, pale glaucous green. Flowers terminal, yellow spotted with red.

N. sativa.—The seeds of this kind are in great repute with the Egyptian ladies for improving the complexion. It is also supposed to be the plant alluded to by the Prophets Isaiah and Ezekiel by the name of Black Cummin or Fitches. Plant 12 to 18 inches high. Leaves much-divided, segments short. Flowers yellow. The least showy of all. Egypt.—W. H.



MR. CUTLER writes to us as follows relative to the simultaneous collection that has recently been made on behalf of the funds of the GARDENERS' ROYAL BENEVOLENT INSTITUTION—“As I feel certain that many of your readers take great interest in the success and progress of this movement, I beg to inform you that up to and including this morning, the 12th inst., I have received 206 responses to the appeal of the Committee, contributing the sum of £241 14s. 1d., being an average of £1 3s. 5d. each response.”

— THE INTERNATIONAL POTATO EXHIBITION to be held at the Crystal Palace, Sydenham, September 20th and 21st, is by its promoters expected to prove more than ordinarily interesting. The schedule contains some novel features, and arrangements will be made for cooking and tasting new varieties previously to any adjudication upon their merits. We advise intending exhibitors to select their samples when lifting their crops, this being far better than searching for them afterwards in the store. Schedules may be obtained of the Secretary, Mr. A. McKenzie, Tower Chambers, Moorgate Street; and moneys may be paid to the Treasurer, Mr. Shirley Hibberd, 15, Brownwood Park, London, N.

— MESSRS. JAMES CARTER & Co. have sent us a plant of their new Tom Thumb *TROPÆOLUM EMPRESS OF INDIA*. The plant possesses the excellent habit and small bluish green foliage of the King of Tom Thumbs, which is so well known and widely cultivated. But rich as that variety is in colour, the Empress of India is decidedly richer, being an intense crimson scarlet with a velvety gloss. The form of the flower is good and the petals stout. This new variety, which is to be sent out this season, will prove an acquisition for beds, borders, and balconies.

— “W. B.” writes confirming what Mr. Brotherston says on page 86 in relation to *DIANTHUS NAPOLEON III*. “It is,” he says, “a beautiful plant, but liable to go off when planted in the borders. It is a safe plan to keep a few in pots and winter them

in a cold frame. *Napoleon III.* does well in pots for decoration, and will flower well towards the end of June or early in July, if kept in frames during the early part of the season.”

— THE following GARDENING APPOINTMENTS have recently been made:—Mr. D. Williams, late foreman at Lockinge, succeeds Mr. Hinds as gardener to Lord Wimborne, Canford, Wimborne; Mr. G. Richards, late foreman at Gunnersbury Park, succeeds Mr. Chilman as gardener to the Earl of Normanton, Somerley, Ringwood; Mr. A. Mackellar, late foreman at Penryn Castle, succeeds Mr. Knight as gardener to the Duke of Roxburghe, Floors Castle, Kelso; Mr. H. Knight, late of Floors Castle, succeeds Mr. Brown as gardener to the Rt. Hon. W. H. Smith, Greenlands, Henley-on-Thames; Mr. Jno. Wilson, Belsize Court, Hampstead, succeeds Mr. Smith as gardener to Miss Sullivan, Broom House, Fulham; and Mr. A. Burgess, Roby, Sydenham Hill, becomes gardener to Frances Lady Hastings, Franklands, Burgess Hill.

— “WE have to announce,” says the *Literary World*, “the death of MR. HEWETT COTTRELL WATSON, the eminent topographical botanist, which took place at Thames Ditton on the 27th ult., after a long and painful illness. Mr. Watson was the son of Mr. Holland Watson, a magistrate for the counties of Cheshire and Lancashire, and was born in May, 1804. Having completed his education at the University of Edinburgh, for some years he edited the ‘Phrenological Journal,’ but after his withdrawal from that position he devoted himself more exclusively to botany, on which he published many works. He was also the author of numerous pamphlets and papers, and among the best known of those is the ‘London Catalogue of British Plants,’ the sixth edition of which bears the date of 1867.” Mr. H. C. Watson was best known in scientific circles by his *New Botanists' Guide* and *Cybele Britannica*.

— IT is announced that the annual Exhibition of the NORTHERN DIVISION OF THE NATIONAL CARNATION AND PICOTEE SOCIETY will be held on Wednesday, August 24th, in connection with the International Exhibition in the Botanical Gardens, Manchester. The Council of the Botanical Society have granted £10 towards the prize fund, exhibition space, and free passes to exhibitors. The Rev. F. D. Horner, Kirkby Malzeard, Ripon, is the Hon. Secretary and Treasurer.

— AT the last meeting of the Council of the Royal Agricultural Society of England Mr. Charles Whitehead, Maidstone, moved that PRIZES FOR VEGETABLES AND MARKET GARDEN AND FARM FRUITS be offered at the Reading meeting, and that it be referred to a Committee, which he named, to draw up a scheme for this purpose and report to the November Council. Mr. Whitehead said he was sure such a show would be immensely popular and prove of great advantage to the producers of vegetables and fruit, the growth of which he felt confident might be very largely increased, to the benefit not only of the growers but of the consuming public, many of whom were only able to obtain vegetables and fruit at almost prohibitory prices. The Royal Agricultural Society might do very much, not only to encourage an increase in the growth of fruit and vegetables, but also to help towards an improved preparation and distribution of them, and also, as he believed, to establish an export trade in these commodities to France, Holland, and Belgium. The details of his scheme were yet in embryo, but if the matter were referred to the Committee they would be in a position shortly to ask for the allotment of a sum of money, which, however, he was satisfied would be very small compared with the great advantage to be derived. Mr. James Howard, M.P., seconded the proposal, which after some discussion was adopted.

— AMONG the numerous beautiful HARDY PLANTS AT

MR. WARE'S NURSERY, TOTTENHAM, very noticeable a few days ago were the two attractive Lilies, *L. Leichtlinii* and *L. Batemannæ*. Flowers of these are now before us; and though they are considered as closely allied botanically, their appearance to casual observers would not suggest a very close relationship. They are both included in the sub-genus *Martagon*, the first-named, *L. Leichtlinii*, having neat flowers of moderate size, the petals strongly recurved, narrow, pale yellow, and spotted with very dark purple. *L. Batemannæ*, also a Japanese form, is of stronger taller growth than the preceding, with larger flowers of a reddish orange colour. It is very bright in colour and free in flowering. Another effective and useful plant is *Aselepias tuberosa*, which at this period of the year is scarcely excelled amongst herbaceous plants in the brightness of its scarlet or coral-tinted flowers. These are borne in dense umbels in the axils of the leaves near the upper portion of the stems. Among many pretty single Dahlias a white variety with broad oval petals and bright yellow centre is deserving of notice, numerous other choice plants contributing to the attractions of the nursery.

— MESSRS. CASSELL, PETTER, & GALPIN send us the current parts of the following periodical works now being issued by them, and to earlier numbers of which reference has been previously made. Part 12 of "*Paxton's Flower Garden*" contains coloured plates of *Jasminum gracillimum* and *Moutan officinalis* (*Pæonia Moutan*) var. *Salmonæa*, the former (of which an excellent woodcut was also published in this Journal, December 23rd, 1880), being admirably represented; indeed it is unquestionably one of the best plates that has yet appeared in the work. They are accompanied by descriptions and cultural instructions with a continuation of the "*Gleanings*." Part 30 of "*Familiar Garden Flowers*" gives coloured illustrations and full descriptions of *Coreopsis lanceolata* and *Adonis autumnalis*. Part 53 of "*Familiar Wild Flowers*" has coloured representations of *Fritillaria melcagris* and *Sisymbrium officinale*, which are also interestingly described.

— THE following paragraph appears in the *Gardener* relative to the QUALITY OF FRUIT:—"It cannot but have struck the frequenters of our summer flower shows during the past two or three years, that there has been an appreciable falling-off in the quality of the fruit exhibited—particularly Grapes. Pines, of course, have been few and poor, the supply of St. Michael's Pines having greatly reduced the interest in Pine culture in our gardens. It is not so with Grapes, however; and unless we are to attribute the inferiority of the examples that have been shown to the recent bad and untoward seasons we have experienced, it is difficult to assign a cause. It is not at all improbable that the cold and dull seasons following one another in succession for a number of years, as has been the case, may have impaired the constitution of Vines under glass. The agricultural papers say that the effect of the continued cold and sunless seasons has been to deteriorate the quality of the hay crops, and almost to destroy much of the finer and better herbage, whose place has been usurped by the coarser grasses; and it requires no stretch of the imagination to believe that permanently planted indoor subjects may have suffered in some degree also. The complaint of the fruiterers this season is that Grapes are unusually ill-coloured."

— "G. O. S." asks if any of our readers can tell him how to make "birdlime" from the bark of Holly trees recently cut down.

NOTES ON CIRCUIT.

THE summer assizes as far as concerns the Roses are over, and those who have been acquitted as well as those who have been condemned, the prizewinners and the defeated candidates, can now look back with doubtless very different feelings to the events of the past months. Some will recollect with what ease they won their position, others how close a matter it was, how very little between them and defeat; while many who think over their

failures will see where their weakness was, and endeavour to secure in another season that which they have failed to accomplish in the present one. Amongst these various encounters I have been busily employed. It is my holiday time, and a very pleasant although often a very laborious one it is. I have been present at sixteen Rose shows; at these, with the exception of those of the National Rose Society, where for obvious reasons I declined to act, I have officiated in the capacity of Judge; and as I could not annihilate the conditions of time and space, had to refuse requests to act from six other places. I have sometimes had to act single-handed, but generally with others; and having already given notices of some of the exhibitions that I have attended I shall in these notes refer to the remainder, noticing anything that has struck me as remarkable where a detailed account would be needless. My usual *résumé* of the Rose season I shall reserve for a little later period, when we have seen the result of the Manchester Exhibition and how Roses come out in the latter part of August.

On my way to Sheffield I was detained for a couple of hours at Nottingham, and on walking through the town I saw a placard up, "To the Rose Show;" and on inquiring of a policeman found that it was open that day. So I jumped into a bus, which brought me to St. Ann's; and here, then, was the famous show spoken of by Canon Hole in his "*Book about Roses*." On sending in my card I was courteously received by the Secretary, a major in a volunteer regiment, and consigned to the care of another gentleman who had been formerly a President of the Society. I was ushered into a large tent some 200 feet long filled with Roses, vegetables, Fuchsias, and stove and greenhouse plants, and as I was told that it was entirely an artisan show managed by themselves it certainly was at first sight very creditable. Nottingham is famous for its allotment gardens, there being literally miles of them, so that the artisan class have a good opportunity of employing their leisure time. I was about to expatiate upon the admirable result of this system, how it must tend to elevate them, &c., when my companion said, "I wish it were so. But I think this is such a Rose show as you have never seen before." They were not shown, I should say, in large stands; sixes, threes, twos, and single specimens being about the number; and when I saw sixteenth prize in the class for six blooms I must say I did not envy either the Judges who had to award or the grower who had won the prize. "But," said my companion, "look at this Rose," pointing me to a fine specimen of Charles Lefebvre; "you will see on this leaf a letter marked in ink." Sure enough there it was. I said, "What is the meaning of this?" "Well," he said, "we found that exhibitors were not very particular as to how or where they got their Roses for exhibition; and so, seeing that their ideas of the *morale* of exhibiting were rather hazy, the Committee deputed some of their number to go round the night before the Show, ask each exhibitor what Roses he is going to exhibit, and then mark them with his initial. But," he said, "even this was not enough. We found in one or two instances that the ink had been cleverly damped and transferred to another Rose. So you will see that here the man's name is put at full length. They are very angry at being thus marked out, but what could we do?"

All this was disheartening; but I must say examples of this kind are to be met with even amongst growers who cultivate a much larger number. I remember at a Crystal Palace show a grower (not an amateur) coming up with a Rose in his hand to one of our best exhibitors. "Is this so-and-so?" "Doubtless." "Then I have duplicates. Could you oblige me with one?" a request which was complied with thus—"If you don't be off I'll kick you out of the Palace." I have known an exhibitor in a collection of stove and greenhouse plants try to filch one from the next collection to make up his number. But these are exceptional cases, which are, I fear, to be met with in all exhibitions. In those for dogs, birds, poultry, horses, &c., false statements as to age, and other tricks to make them appear different from what they really are, are not unfrequent, but I never met with it in such a wholesale manner as at Nottingham. And then as to its elevating tendency. I grieve to say that my companion said some of the roughest and most intemperate of the artisans were amongst the successful exhibitors, and that one had to be turned out the night before for his foul and abusive language. "The truth is," he said, "The Society is going to the dogs. Everything has been done to get it out of the pothouse element. That will be its destruction. The coffee palace was given to them to hold their meetings in, the clergyman offered to help them; but no. Beer was their master, and hence everyone of respectability is withdrawing from it, and the whole thing must collapse." Now here is a Society where no "interfering parson" or "meddlesome squire" has come in to put things (as they sometimes aver that they do) wrong. It is an artisans' Society managed by artisans, and this is the result. It is a sad

proof, if more were needed, that the old Latin proverb is a fallacy, and that to have learned arts such as gardening neither softens men's manners nor makes them gentle. The affection that is to expel the old evil must be stronger than a love of flowers or art. It is, of course, a little hard on an honest exhibitor that he must suffer for the faults of his neighbours. We often find that a Rose which has been depended upon for exhibition is gone before the morning, and then in Nottingham a man's chance would go with it. Now in saying all this I have been only influenced by a desire to do good to our friends there. Let them recollect "faithful are the wounds of a friend," and if I have probed the wound it is in the hope that by so doing I may help to cure it. Let them not "think I am become their enemy because I tell them the truth." If they could but see how discreditable this is to the character of the class to which they belong I hope and think they would make a strong resolution to put an end to these practices.

But how did they exhibit? Well, I can truly say surprisingly well. Size is evidently more looked upon with favour than form or colour, and hence Paul Neyron is an especial favourite, they having given it the name of their favourite hero, that "unfortunate nobleman languishing in Dartmoor prison." Ah! I heard frequently from the lips of some begrimed horny-handed artisan, "Look at old Titch [Titchborne]. Is not he grand?" as they stood before a Rose large enough for a Cauliflower. Withal there were some grand blooms of our favourites Charles Lefebvre, Marie Baumann, Prince Camille de Rohan, and others, the few trees that they possess evidently obtaining that special and individual care in which all pets delight. Their vegetables were excellent, and, indeed, everything showed the mark of intelligent care. One grower, who I was informed was a petty tradesman but little removed from the artisan class, exhibited some excellent examples of such plants as *Eucharis amazonica*, *Dracenas*, &c., while *Fuchsias* were well-grown small plants. Many of these artisans have rented small houses for themselves, which are devoted to the cultivation of stove and greenhouse plants, and of which their owners are as proud—indeed prouder, for they are more part of themselves—than the owners of the long ranges of houses at Chatsworth, Trentham, or Eaton. They are attended to with most loving care, and the old story of the Auricula grower who stripped his own bed that he might put the blankets on his frame one cold winter's night, might be reproduced here. It is a great pity that all should be marred by this flavour of dishonesty which pervades the whole thing. If this evil were stamped out I am sure the St. Ann's Society would receive such encouragement as would make it one of the most interesting societies in the kingdom.—D., Deal.

ROYAL HORTICULTURAL SOCIETY.

AUGUST 9TH.

GLADIOLI from Langport and Petunias from Swanley were the two special features of the meeting, though new plants were well represented by the Chelsea firms. The Council-room did not present a crowded appearance, nor were the duties of either Committee very onerous, but for the fast-advancing season the exhibits were good in quality and numbers.

FRUIT COMMITTEE.—Harry J. Veitch, Esq., in the chair. W. H. Dunnett, Esq., Stour House, Dedham, Essex, sent fruits of a new seedling Black Currant named Black Champion, for which a first-class certificate was granted. The individual fruits were of remarkable size, globular, and very black. The bunches also were unusually large, and, judging by the small branches exhibited, the variety must be an extremely prolific one. Both the members of the Committee and the horticultural visitors generally were unanimous in their praises of it, and several unhesitatingly affirmed it was the finest Black Currant that has been seen at Kensington. Mr. R. Phillips, gardener to Captain Jackson, The Deodars, Meopham, Kent, showed three handsome bunches of Duke of Buccleuch Grape, for which a cultural commendation was deservedly awarded. The berries were of remarkable size even for this variety, and the flavour was good. Fruit of Tomato Perfection, a cross between Trophy and Acme, were also shown. They were very even and globular in form, and of excellent colour. It is also said to be prolific. Mr. Record, gardener to Chas. Hanbury, Esq., Belmont House, East Barnet, was awarded a cultural commendation for three Queen Pine Apples, of good size, regular in shape, and of good colour. Messrs. T. Rivers & Son, Sawbridgeworth, exhibited a collection of Cherries, comprising eleven varieties, especially noteworthy being the handsome Bigarreau Noir de Schmidt. Several other varieties were also superbly represented. A vote of thanks was accorded. Mr. T. Bailey, The Gardens, Shardeloes, Amscham, sent a finely netted fruit of Victory of Bristol Melon, weighing 7 lbs. 2 ozs. Mr. J. Monro, The Gardens, Harefield Grove, Uxbridge, also sent a very large ribbed green-flesh Melon named Highfield Grove Melon, of moderately good flavour, but not great depth of flesh. Mr. J. Walker of Thame obtained a first-class certificate for Pea named Walker's Perpetual Bearer, a variety of moderate height

and prolific, the pods being about medium size and well filled. Mr. H. Eckford, gardener to Dr. Sankey, Sandywell Park, Cheltenham, also had a new Pea named Victor, a cross between Champion of England and Advanceer, but which was not considered specially remarkable. Mr. Culverwell of Thorpe Perrow sent several seedling Peas that were thought very promising, and recommended to be tried at Chiswick. A collection of Apples and fruits of the Pear Bergamotte Auguste Jurie were contributed from the Society's Garden. Mr. Fleming, of Cliveden, Maidenhead, sent fruits of Dr. Hogg Fig in good condition, and the Committee requested that the variety should be tried at Chiswick.

Messrs. Hooper & Co.'s prizes for fruits of the green-flesh Melon Sirdar of Cabul were accorded to Mr. G. Williams, The Gardens, Peasemarch Place, Rye, and Mr. G. Stiggles, gardener to H. W. Green, Esq., Faulkners House, Hadlow, Tunbridge, who were placed first and second respectively for fruits of good size, the former smooth and the latter ribbed. There was no exhibit in the class for Tomatoes.

FLORAL COMMITTEE.—James McIntosh, Esq., in the chair. Messrs. J. Veitch & Sons, Chelsea, staged a beautiful though small group of new plants including several fine Orchids, one of which was certificated and is described below. A Solanum-like plant named *Jasmonica Sodenia* (?) was noteworthy for its cymose panicles of white starry flowers; and hybrid *Cypripediums* were also well represented. Mr. Bull of Chelsea contributed a collection of new plants, several being honoured with certificates. Messrs. Kelway & Son, Langport, Somersetshire, had a handsome collection of Gladioli, over four dozen spikes being shown, the flowers large and the colours varied, either exquisitely delicate or strikingly rich and bright. Messrs. H. Cannell and Son, Swanley, contributed a fine display of double *Petunia* blooms, 160 being staged, representing many distinct and beautiful varieties. Some very pretty fringed forms were particularly noteworthy, and the tints ranged from white to pink of various shades, crimson, and purple, some being very rich. Several large Sunflowers, fine African Marigolds, specimen of the dwarf, free, brightly coloured *Tropæolum Vesuvius*, and varieties of *Salpiglossis sinuata* were exhibited by the same firm, for all of which a vote of thanks and cultural commendations were awarded. Mr. A. Waterer, Knap Hill, Woking, had some fine examples of *Lilium Parkmanni* and L. Mrs. Waterer, the former being very handsome and well deserved the cultural commendation awarded for it. Baskets of *Erica vulgaris aurea* and *alba nana* were also shown, the last-named being very floriferous and compact in habit. A variegated *Abies* was certificated, and is described in another portion of the report. Messrs. Carter & Co., High Holborn, exhibited some good specimens of the deep orange-coloured Lily L. Batemannæ; flowers of a new bright rose-coloured *Eschscholtzia* named Rose Cardinal, very pretty; and flowers of the new dwarf *Tropæolum Empress of India*, which were very bright in colour. Mr. T. S. Ware, Tottenham, staged a collection of single Dahlias. A white variety of good form named White Queen was noteworthy, as were also some yellow, scarlet, and purple forms. Mr. W. J. Cross, florist, Salisbury, sent a stand of blooms of a Carnation named The Governor, blush white, compact, full, even, and of good substance.

Captain Patton, Alpha House, Regent's Park, sent a plant of *Lilium auratum* with a peculiar fasciated stem, the numerous flowers being very closely clustered near the summit. G. F. Wilson, Esq., Weybridge, was awarded a vote of thanks for a spike of *Watsonia rosea*, the flowers possessing a very pretty shade of light rosy purple.

In the vestibule Messrs. C. Lee & Son, Hammersmith, had an interesting collection of hardy trees and shrubs, comprising ornamental and variegated forms of Oaks, Beeches, Elms, Alders, Horse Chestnuts, Maples, Elders, Dogwoods, and many others, all more or less attractive. Messrs. F. & A. Smith of West Dulwich also had a group of Balsams in pots, the plants of moderate size, but the flowers were of excellent form, very double, and good in colour. The Committee recommended that medals should be awarded to Messrs. Kelway for their Gladioli, to Messrs. Cannell for their Petunias, and to Messrs. Lee for the hardy plants.

First-class certificates were awarded for the following plants—

Cattleya Chamberlainiana (Veitch).—A beautiful hybrid between C. Leopoldi and C. Dowiana, the former parentage predominating. The sepals and petals are narrow, of a purplish crimson hue, the lip being fringed and rich purple in colour.

Bouvardia Alfred Neuner (Bull).—The double American *Bouvardia* which has been repeatedly described in these pages. Some of the umbels on the plant shown had over a dozen flowers of neat form.

Adiantum aneitense (Bull).—One of the pedate section of Maidenhair Ferns, the pinnules being oblong in shape and very closely placed, forming a neat frond of moderate size.

Actinopteris australis (Bull).—A pretty but well-known little Fern with neat palmately divided fronds, the divisions being linear in form.

Gladiolus Pelargo (Kelway).—A handsome variety. Flowers large, of a rich scarlet colour, with a few darker streaks. The blooms are very closely placed in the spike, which is massive and imposing in appearance.

Asplenium pteroides.—Mr. C. Green, The Gardens, Pendell Court, Bletchingley, was accorded a first-class certificate for a Fern under the above name. It is a native of Lord Howe's Island, and has pinnate dark green fronds, the pinnæ having narrow tooth-like segments closely set on the stalks. In general outline the frond is acutely elliptical, 8 to 12 inches long, the pinnæ 1 to 4 inches long.

Cereus pectinatus (Croucher).—A species with peculiar barrel-shaped

stems, covered with reddish spines, form quite a close network on the surface.

Cereus giganteus (Croucher).—A strongly ribbed form with greyish or bluish spines, much larger than the last.

Echinocactus Wistizenii (Croucher).—Also strongly ribbed. The spines very strong and long, curved at the extremity. A few white filaments are distributed amongst the spines.

Abies canadensis variegata (Waterer).—A variegated form of the Canadian Abies, the young shoots being very prettily marked with white.

Malva moschata alba.—Messrs. H. Cannell & Sons were awarded a

first-class certificate for this plant, which is a beautiful variety of Mallow with pure white flowers. These are produced in great abundance, and the plant being quite hardy it is a really valuable addition to the list of border plants. No doubt the flowers would prove very useful for cutting.

PYRUS SPURIA.

ONE of the ornamental Pyruses, which well deserves a place in any garden where space can be devoted to such trees is that represented in the woodcut (fig. 23), for during the early summer



Fig. 23.—PYRUS SPURIA.

months its large clusters of white flowers are very attractive. The bright green variable leaves are also not deficient in beauty, and when in its best condition the tree would rank high amongst its numerous congeners. A specimen was very noticeable a month or two since in Messrs. Osborn & Sons' nursery at Fulham, where a good representative collection of the species is grown. This tree, from a small branch of which the accompanying engraving was prepared, well indicated the value of such Pyruses for planting amongst other trees of moderate growth as a background to shrubberies, or singly on lawns in suitable positions, not too prominent, yet where the specimen can fully develop and be seen to good advantage.

Pyrus spuria is known in gardens and nurseries under various

names, one being *P. hybrida*, which was given to the tree by Moench, and is scarcely less worthy of acceptance than Decandolle's name given above. The specific designation *hybrida* has the merit of being expressive, for the form is considered as a probable hybrid between *P. aucuparia* and *P. arbutifolia*, both of which species it resembles in several characters of foliage, flowers, and fruit. It came into cultivation at the close of the last or the commencement of the present century, and is now moderately well known, being included in most large collections of trees, though its culture must be largely extended before it can be considered so generally known as it merits. A weeping variety, by the name of *P. spuria pendula*, described by Loudon, is also occasionally seen. The type of this hybrid, or species, is assigned in

Decandolle's "Prodromus" to the section *Sorbus*, which includes in addition *P. auriculata*, *P. pinnatifida*, *P. microcarpa*, *P. aucuparia*, *P. americana*, *P. Sorbus*, and *P. lanuginosa*, several of which are inmates of our gardens.

SCHIZANTHUS PINNATUS.

At one time, like many other members of the gardening community, I was very much prejudiced against annuals for greenhouse and conservatory decoration. I thought they looked so common to be grown in houses, and perhaps many may think so now. But such is by no means the case. If we could form any reasonable objection to them on that score it would also apply to numerous other plants that are forced and grown for conservatory decoration. Take, for instance, the numerous bulbs that flower outside, such as Tulips, Hyacinths, Crocuses, Narcissus, &c. We naturally admire them when we see them in the herbaceous and shrubby borders; but when in full flower in the conservatory two or three months earlier they are admired much more. Take the Lilacs for another example. We all welcome them when they come into flower in our shrubberies; but if forced into flower a couple of months earlier are they not much more welcome?

Schizanthus pinnatus in all its various forms and colours is undoubtedly one of the most useful of the numerous annuals that are suitable for conservatory decoration. It is a very accommodating plant, and may be had in flower eight or nine months in the year; but the first batch cannot be expected to be so fine as those that come in later on. We have several specimens in flower in the conservatory now, and very useful they are. It is surprising what a display they make, forming quite a relief to the other occupants. From early spring to the present time we have not been without them in flower in the conservatory, and shall not be without them for some time to come, for we have two successive batches coming on to flower later in the year. The succession is maintained by sowing a pinch of seed in a 48-size pot rather thinly, place the pot in heat for a few days until the seed has germinated, then gradually harden the plants till they are transferred to the cold frame, as when they are grown cool they are much more dwarf and sturdy. When the seedlings are sufficiently large to handle they should be pricked off singly in large 60-size pots, or three plants may be pricked out into a 48-size pot. These may be grown on and flowered in that size. Very fair plants may be produced in 48-size pots if proper attention be paid to watering; but if specimens are required of a larger size, the plants that have been grown singly can have their final potting before they become too much root-bound. Three plants may be placed in a 32-size pot. The frame should be kept close for two or three days until the plants commence rooting into the new compost, after which they may be fully exposed, taking the lights off entirely, guarding only against heavy rains and cutting winds. *Schizanthuses* are by no means fastidious as to what soil they grow in. Any light rich soil will suit them well. A packet of seed yields numerous varieties differing both in colour and habit. Some of the plants that we have had this season have been extremely dwarf and bushy, whilst others are taller-growing. The taller plants generally have the largest and prettiest flowers.—W. K.

PORTRAITS OF NEW AND NOTABLE PLANTS.

MELIANTHUS TRIMENIANUS. (*Nat. ord.*, Sapindaceæ).—"Sir Henry Barkly, K.C.B., when Governor of the Cape of Good Hope, discovered this singular and beautiful plant during a visit to Little Namaqua Land, a district bordering the Atlantic to the northward of the Cape Colony, from whence he sent to Kew dried specimens and seeds, together with a drawing by Lady Barkly, as a new species of *Melanthus* with scarlet flowers. The seeds of *M. Trimenianus* germinated readily, but the plants kept in the conservatory at Kew made slow progress compared with one which was sent to Mr. Hanbury's garden at Mortola, near Mentone, on the Riviera, where it flowered for the first time and fruited in 1879. In its native country *M. Trimenianus* is an erect shrub, 2 or 3 feet high; but in the Cape house at Kew it is trained against a rafter, exactly as the long-known *M. major* is in the temperate house, and grows 6 or 7 feet high. The smell of the foliage is even stronger than that of the last-named plant, and exactly like it."—(*Bot. Mag.*, t. 6557.)

PROTEA PENICILLATA. (*Nat. ord.*, Proteaceæ).—"Protea penicillata is one of the least attractive of the whole genus, and is no encouragement to the cultivators of the tribe; its singular appearance and rarity being its only recommendation. The plant figured flowered in August, 1880, and was raised from seed sent by Mr. MacOwan, late Principal of Gill College, Somerset East,

an excellent botanist, to whom the Royal Gardens are indebted for many valuable seeds and bulbs, as well as herbarium specimens, and who has lately accepted the Directorship of the Botanical Gardens at Cape Town, which are to be established on a new footing. The seeds were collected on the Boschberg Mountains in Somerset East, at an elevation of 4000 feet."—(*Ibid.*, t. 6558.)

JASMINUM GRACILLIMUM. (*Nat. ord.*, Oleaceæ).—"A very near ally of the well-known *Jasminum pubescens* of India and China, which is the type around which are to be ranged a good many closely allied species, differing in habit, in the amount of pubescence, and in the size and number of flowers and of the divisions of the corolla, all of them natives of Eastern Asia and its islands. Of these *J. gracillimum* is one of the most distinct in its graceful habit and in the abundance of its large sweet-scented drooping flowers, which are also more copiously produced, in which respects I know of none to compare with it. It appears to be a small species. The pot plant exhibited by Messrs. Veitch at the Royal Horticultural Society, and which was in full flower, was about 3 feet high, branched from the base, the long very slender branches springing from low down on the stem and curving over on all sides, weighted down by terminal globose panicles as large as the fist. *J. gracillimum* is a native of Northern Borneo, where it was discovered by Mr. Burbidge when collecting for Messrs. Veitch, with whom the plant flowered last December."—(*Ibid.*, t. 6559.)

POTENTILLA (IVESIA) UNGUICULATA. (*Nat. ord.*, Rosaceæ).—"A very delicate silvery plant, with pearly-white flowers, a native of the famous Yosemite Valley in California, where it grows in meadows at an elevation of 8000 feet above the sea level. In a young state and in dry weather it forms a really charming herbaceous border or rock plant, but when dashed by the rains of an English summer (an ordeal it is not exposed to in its native country), it presents a miserable and draggled appearance, its beautiful leaves being sometimes beaten down and almost buried in the soil. It belongs to a section of *Potentilla* which has been erected into a genus under the name of *Ivesia*, consisting of nearly a dozen species, natives of the mountains of Western North America, with usually small imbricating leaflets that give the leaf more or less of a cylindrical form. This character, combined with others appertaining to the first-discovered species, appeared to suffice to establish the genus as distinct from *Potentilla* and *Horkelia*. Subsequent discoveries, however, have invalidated the claims of *Ivesia*, and it was reduced to *Potentilla* in the 'Genera Plantarum.'"—(*Ibid.*, t. 6560.)

CLERODENDRON TRICHOTOMUM. (*Nat. ord.*, Verbenaceæ).—"A native of Japan, of which specimens have been obtained also from Loochoo Island, Formosa, and China, at Amoy and Shanghai, though whether it is a native of the latter countries may be doubted. That it is indigenous in Japan can hardly admit of a question; for it seems to be found from Hakodadi to Yokohama, and it was described by Kämpfer and Thunberg, the latter of whom states that the wood of the branches is inhabited by a larva which is used as a vermifuge for children. *Clerodendron trichotomum* was introduced into this country some years ago, and has proved hitherto quite hardy, flowering copiously in September, when it has a very handsome appearance, but whether it has stood the unusual severity of this present winter remains to be seen; its foliage is early cut by autumnal frosts, and it has not fruited at Kew. In native specimens the corolla-tube is always exserted, sometimes twice as long as the calyx, and slightly curved, but in the Kew specimens it is not exserted for more than a quarter of an inch. The whole plant has when bruised a peculiar heavy smell, which Thunberg likens to the poisonous odour of *Mandragora*."—(*Ibid.*, t. 6561.)

OBJECTS OF SEX AND OF ODOUR IN FLOWERS.

[Read by Mr. T. Meehan before the American Association for the Advancement of Science.]

STUDENTS of Nature, who have thoughtfully observed, must have noted at least two great objects in the creation of sex. The first and leading one is evidently to insure variation; the second to aid and assist reproduction. But our text-books say little of the first; while every behaviour of flowers is regarded as relating to the last, and hence we have so much said and written on the advantages of cross-fertilisation, as if reproduction were the sole end and aim of sex.

That reproduction is not the sole end of sex is apparent from the fact that reproduction by cell division is more common in vegetation than reproduction by seed. Bulbs, tubers, rhizomes, and other subterranean structures, with bulblets, runners, and other arrangements above ground, are familiar examples. Many plants with coloured corollas rarely seed, while some never do. Of these I might name *Ranunculus Ficaria*, *Lilium tigrinum*, the Horseradish (*Cochlearia Armoracia*),

&c.; and again are those which depend on insect or similar agency for pollenisation, and though apparently as a result bearing seed abundantly, yet rarely producing plants in nature from these seeds. Of these last I need only refer to *Yucca* and *Orchideæ* as the best known of the class dependant on insect-fertilisation. The terrestrial *Orchideæ* of the United States mostly fruit in great abundance, and there are many thousands of seeds in each capsule; yet my researches have rarely been rewarded by plants that I could believe to be seedlings, while in nearly all cases the relation by offsets from a parent plant was plain. On the other hand, *Orchid* locations are declining, and *Yucca* confines its species to comparatively limited locations, apparently raising a crop of seeds more for the sake of feeding the larvæ of the *Yucca* moth than as an aid in plant-distribution. So far as reproduction is concerned, it will not be denied that millions on millions of seeds are created in vain, that thousands of millions of flowers bloom uselessly, that volumes of odour and tons and tons of pollen are given to the winds and to the insects, without any possible benefit to the individual, which could be made to increase without any of these productions of no conceivable benefit to the race, except as might arise from some imaginary good from cross-fertilisation. We see from these simple considerations that sex can have but a very moderate relation to the good of the individual or the race; and we may reasonably look about for some more important service which sex is to render.

We find this in variety. This is essential to our present conditions of existence. Imagine the higher order of animals increasing by division! Each would be exactly like its parent. Mr. Smith could not tell himself from Mr. Brown. But the union of two distinct individuals, and each individual with varying powers of transmitting identity, leads to infinite variety, by which each can clearly distinguish that which is his from what is his neighbour's. Variety is a greater necessity to sentient beings than to inanimate things; hence we see that propagation through sex is imperative among them. But it can in this respect make no difference to a plant. It is of no consequence to one blade of grass that another blade should be or not be just like it, but it is of great consequence to the animal life that is to feed on them. Each kind is made to prefer some kinds of fruit and vegetables, which must have distinct characters in order to be easily recognised; and hence we have at once a good reason for form, colour, fragrance, and the infinite variety these productions give rise to. If this view be correct, and I cannot conceive that it can be controverted, it puts a new view on modern teleology. In all the discussions on the various arrangements of plants and animals, we hear only of what good is to result to the individual or to the race. This is the essential character of the doctrine of natural selection. But on the principle that I have sketched out—the principle of variation—we see plants and animals not working merely for their own good, although that is incidentally involved, but for the good of generations yet unborn, and in which they can have no interest. Indeed, following the inexorable law of variation, plants may be said to be labouring to make themselves distinct from each other, so that the various animals may be better able to recognise and consume them. They must necessarily be under the control and direction of an outside Power, which clearly foresees that there will be mouths, and judgment required to select the food which is to go into them; all of which would be useless unless plants were forced into a variety, which is thus to enable them to be the more easily sacrificed when the proper time arrives. Of course the selfish views embodied in the modern doctrines of teleology must be incidentally true. No individual would work unless it supposed it was working for its own good. Pleasure must be a condition of existence. This also must be a universal law, and "natural selection" so far to be conceded. But this law must of necessity be limited. It is not for the good of a plant that it should be eaten by an animal; but it is perfectly consistent with the law of universal good that it should have just enough of thorns, or bitterness, or some other measures of defence, to keep the race from being utterly annihilated.

May we not conclude from all this that variation and not reproduction is the one great law to which we are primarily to refer all sexual phenomena; that reproduction occupies only a place subservient to this law; and if so, may we not proceed to review the theories which have been established under a mistaken idea of the order of things?

I propose to examine, but I shall confine myself here to only one subject; indeed to but a part of that subject—namely, the relation which odour in flowers bears to modern theories of cross-fertilisation.

Mr. Charles Darwin in "Cross and Self-fertilisation," chap. 10, page 381, says—"We certainly owe the beauty and odour of our flowers, and the storage of a large supply of honey in them, to the existence of insects;" and Professor Asa Gray in his recently issued "Structural Botany," page 217, follows by observing, "Anemophilous flowers are mostly destitute of odour, and not nectariferous;" and further, page 218, "Nor do we know that fragrance or other scent, or that nectar subserves any uses to the flowers than that of alluring insects." You see that the idea uppermost in the minds of these authors is that some direct good to the plant must be inferred from its peculiar form, colour, fragrance, or secretions, and the absolute necessity of mere variation is wholly ignored. But we have colour and odour even in minerals. We do not look to any special benefit to them from these possessions, but we can understand why they should possess them under the universal law of variety. Besides,

odours and sweet secretions are not confined to flowers, but pervade all parts of the plant in various degrees.

The leading veins of the leaves of the *Catalpa*, as recently shown by Mr. John A. Ryder of the Philadelphia Academy of Natural Sciences, are furnished with glands which secrete nectar and furnish food for innumerable ants. We may agree with Dr. Gray that this nectar is for alluring insects, but where does the good in the *Catalpa* come in? Odour and colour abound in great variety among Mushrooms and fungi generally, and in Lichens and Seaweeds; have these been developed to make them attractive to insects for any purposes that we can conceive of in connection with individual good? They have separate sexes; but notwithstanding their colour and odour, cross-fertilisation is not effected by any insect agency. If, as Mr. Darwin says, we should not have any beautiful or odoriferous flowers had insects not existed, how did these lower orders of plants come by colour? We cannot understand it on any theory of natural selection, but we can understand it on the basis of the necessity for a universal variety in all things. Again, bright colour is not confined to flowers. In tropical countries coloured leaves abound, and of these the *Begonias*, *Crotons*, and *Dracenas* of our greenhouses afford familiar examples; and, strangely enough, most of these coloured-leaved plants belong to classes which are supposed to be anemophilous, or fertilised by the wind, and can therefore have no interest in making themselves attractive to insects.

(To be continued.)

WELLS'S SPRAY-DIFFUSER.

THIS, if we mistake not, is a "Yankee notion," and was in its original form used in American hospitals for disinfecting purposes. Mr. Wells, of the Earlswood Nurseries, Redhill, has by sundry alterations converted it into a horticultural appliance of considerable value. It is much less of a plaything than some spray-distributors that we have seen, and is used precisely the same as a pair of bellows. An insecticide of any kind, and of approved

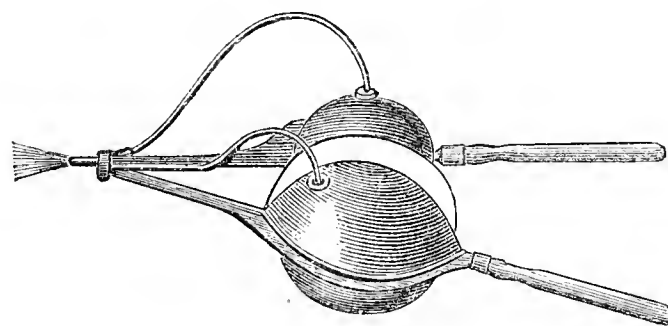


Fig. 24.

strength, if placed in the reservoir can be distributed far more economically than through a syringe, and is often more effectual, as the spray adheres to the foliage like dew, which is not the case when liquid is applied through a syringe. Any insect-infested plant in a collection can easily be dressed with the aid of this implement, and it will be of even greater value in destroying thrips and other insects on Vines where the Grapes are colouring. For this purpose this spray-diffuser will be of substantial value, as a large vinery may be dressed in a very short time without injuring the Grapes by placing the nozzle between the bunches and covering the foliage with, to the insects, deadly dew. We know there are many vineries at the present time in which thrips are abundant, yet the Vines cannot be syringed because of the ripening fruit. We have, in answer to letters from correspondents, recommended that the foliage of such Vines be sponged; but the insects might in all probability be destroyed much more quickly by the aid of this simple yet strong and apparently useful contrivance that Mr. Wells has introduced and registered.

DIANTHUS HEDDEWIGII AS A BIENNIAL.

FOR cutting or show purposes, since the end of spring, out of a fairly large number of flowers in bloom, I cannot remember anything to exceed in beauty the single and semi-double varieties of *Dianthus Heddewigii*. I note the single and semi-double, for though larger I do not consider the perfectly double flowers at all bright and showy. The brilliancy of the inner petals is lost, and rain destroys the blooms sooner. My object, however, in writing is to advise those who have not yet grown this *Dianthus* to add it at once to their collections, and to treat it as a biennial—that is, not to allow it to flower the first year, but to grow it continuously in good, rich, firm soil. Although the plants are almost perfectly hardy, a slight protection easily improvised will bring them safely through the winter, and the following year you will have them blooming some two months before those grown

and treated as annuals ; and not only that, but there is no comparison between the number of blooms. I may anticipate one objection in reference to remaking and manuring the beds and borders by saying I find the plants to lift in spring or autumn with a firm ball of earth, and grow uncheeked. Indeed this should be done if mulching is not applied in winter. I have been cutting bunches for the last six weeks, and the more you remove the better the remaining blooms expand. Eastern Queen and Crimson Belle are among the best of the single varieties for succession thus treated ; but as I lost many during the last severe winter I cannot consider them so hardy. Enough of the above will, however, come single to meet the views of those who prefer the single form of this flower. If seed cannot readily be procured from any variety of superior merit I would recommend propagation by suckers. Treated as an annual, a few flowers on weak stems are your only reward ; these I prefer picking off, so as to add vigour to plants intended to stand outside over the winter.—W. J. M., *Clonmel*.



KITCHEN GARDEN.

SOWING Tripoli Onions, also Priekly or Winter Spinach, ought now to be completed, the latter being allowed fully 18 inches between the rows, so as to admit of a properly developed growth. Lose no time in sowing Cabbage seed for the main crop, and see that earlier plants are pricked out as soon as large enough, so as to keep them sturdy. As ground becomes vacant plant Lettuces, Endive, and winter greens of the kinds most required, paying attention to a suitable rotation of crops. A good breadth of Turnips should be sown for late winter and spring use, choosing an open yet somewhat sheltered situation. Suitable varieties for this sowing are Veitch's Red Globe, Orange Jelly, and Chirk Castle Black Stone. There is yet time to plant Broccoli for late use, also Cauliflowers for affording heads in early winter should the weather prove mild. Late Celery may still be planted, taking advantage of suitable weather for earthing-up early crops, and supply later crops liberally with water or liquid manure. Late Peas, dwarf and runner Beans, should receive a liberal supply of water or liquid manure to keep them in bearing. A last sowing of Endive can now be made. If a sowing of French Beans be made in a pit to which heat can be given later on, a supply of Beans will be continued long after those outside have been cut off by frost. The lights should not be placed on until there is reason to apprehend danger from frost.

MUSHROOM HOUSE.

Preparation should be made of materials for forming beds in this structure to afford a supply of Mushrooms in autumn. The best materials are unquestionably fresh horse droppings collected daily and spread out in a shed or other place where they will be kept dry, and so thinly spread as to prevent heating, turning them over occasionally. When a sufficient quantity is collected for forming into a bed or beds 15 to 18 inches thick, throw them into a conical heap, and when a gentle heat has been produced turn the heap over and allow it to remain until moderate fermentation again takes place, when the beds can be made, it being important that the materials be rammed down firmly. If a third part of short straw be added it will prevent too speedy decay of the materials. Sawdust may be used in lieu of straw. Where means cannot be employed for collecting the droppings these should be shaken from the litter, forming beds at once. Insert a thermometer with the bulb about 3 inches beneath the surface, and insert the spawn when the temperature declines to 90°, or before it reaches 70°. Pieces of spawn not less than an inch square should be employed, placing them about an inch below the surface 9 inches apart, firming the material well around the spawn, and cover with the same material an inch in depth. In a week or ten days, when the temperature is 70° to 75°, the bed should be earthed, placing a covering of turfy loam 2 inches thick, and beating it down firmly and render it smooth with the back of a spade. The loam should be

moist, so as to form a close firm surface ; if not, water must be employed. A covering of dry hay will tend to maintain the heat of the bed and prevent the surface cracking. The hay must only remain on until the Mushrooms appear, when the surface of the bed must be kept moist by sprinkling with tepid water. The Mushrooms will appear in about six weeks from the insertion of the spawn, and to insure their growth a temperature of 55° should be maintained.

FRUIT HOUSES.

Vines.—The present is a good time to renovate the borders of early houses, or, if necessary, to lift the Vines, it being of primary importance to keep the roots near the surface. In the case of lifting an opening should be taken out at the extremity of the border, working from this point towards the Vines, removing the soil from the roots carefully with a fork, and lightly covering them to prevent their drying. See that the drainage is perfect, and cover it with a layer of turves grass side downwards. The drainage should be a foot thick, and have drains with proper fall and outlet to carry off superfluous water. Turfy friable loam with one part in ten of old mortar rubbish, a twentieth of charcoal, and a fortieth of crushed bones thoroughly incorporated, form a suitable compost. The roots should be laid out carefully in the fresh material, keeping them near the surface, not covering them deeper than from 4 to 6 inches. The compost should not be very wet, but fairly moist and tolerably firm about the roots. Give a thorough soaking with water at 90° to 100°, and mulch with short manure. Whilst these operations are in progress the house should be closely shaded, the ventilators closed or very slightly opened, and the Vines damped occasionally. Syringe the Vines twice a day after the operation is completed, shading to prevent the temperature rising too high. In the course of ten days or a fortnight it will be seen by the growth appearing on the laterals that the roots are spreading in the fresh compost, when the shading should be removed, having it in readiness in case the weather should be very bright for an hour or two at midday. When the Vines have recovered from the lifting admit a free circulation of air, and be careful not to reduce the laterals too closely, or this may cause the principal buds to start. In the case of renovating the border without having recourse to lifting it is only necessary to remove the surface soil, carefully clearing the old soil from amongst the roots and putting in fresh compost, laying in the roots if necessary nearer the surface as above indicated, watering and mulching.

Early Vines merely needing the annual surface dressing may, if the wood is thoroughly ripe, have all laterals cut away and be partially pruned—i.e., some of the longest shoots can be shortened, not pruning finally until the foliage has nearly all fallen. Vines in pots intended for very early forcing should be in the last stage of ripening, but any not so forward as could be wished should have fire heat applied at once ; this with abundance of air will soon cause them to mature. Those now ripe will rest sooner if moved to a wall or fence outdoors, to which the canes can be secured, guarding against the soil becoming very wet by having needful protection at hand, also avoiding the other extreme—overdryness. Keep all lateral growths in check by pinching, the old foliage being carefully preserved. Vines that have crops which are colouring and swelling require free ventilation night and day, applying fire heat if necessary to admit of this, a dry warm atmosphere being essential to high finish. Grapes in any stage later than colouring should now be hastened forward, maintaining a night temperature of 65° to 70°, and 70° to 75° by day, in dull weather. Late Hamburgs need not be pushed forward unless there is danger of their not colouring before the end of this or the beginning of next month. As there has been great want of rain in some localities the outside borders must not be neglected, but be given thorough supplies of water or liquid manure in a tepid state. Where it is desired to preserve black Grapes as long as possible it is necessary, unless the foliage is good, to shade slightly.

Melons.—Give all possible attention to the last batch of plants, encouraging them in every way to make a quick and strong growth. A minimum temperature of 70° to 75° should be maintained, and a maximum of 85° to 90°, with a moist atmosphere, shading only to prevent flagging. Train with one stem only, allowing it to advance well up the trellis before stopping, pinching out all lateral growths

starting below the trellis or between that and the bed, and remove every alternate lateral above this, and if fruit does not show at the second or third joint pinch out the points at those, and fruit will be shown freely at the next break. Earth up those plants that have just set their fruit, having previously given a soaking with tepid weak liquid manure, securing a moist genial atmosphere, and keep the laterals well in hand by prompt stopping, and if necessary judicious thinning, for on no account must the principal foliage be allowed to become crowded. Late crops in pits and frames must have a steady bottom heat of 80° to 85°, and the top heat kept at about 70° at night, and 80° to 85° in the daytime from sun heat.

Cucumbers.—Bestow liberal attention upon the plants for autumn fruiting, and add a little fresh soil as the roots appear at the sides of the ridges. Syringe the plants about 3 P.M., closing the house at the same time, but being guided in this respect by the weather. In the case of robust healthy plants shading may now be almost dispensed with, and less atmospheric moisture will henceforth be needed; still, plenty of moisture, liberal feeding, and thinning crowded growths will be required.

ORCHARD HOUSE.

If it is desired to accelerate the ripening of the fruit it may be effected by closing the ventilators at 5 P.M., and opening them at 7 A.M. Syringe the trees every night, doing so sufficiently early to have the foliage fairly dry before night, but when the fruit commences ripening syringing must be discontinued. Peach and other trees swelling off their fruit, whether in pots or planted out, must have liberal treatment as regards surface dressings and liquid manure. Continue to stop or pinch back very luxuriant shoots, and as soon as the fruit is gathered from any tree syringe well until it is entirely cleared of red spider or other insects. If it is desired to retard the ripening of the fruit of any of the trees so as to prolong the season—which is often advisable with Peaches, Nectarines, Plums, and Pears—some of the trees may be placed outdoors, assigning them an open situation, but sheltered from winds, a few being placed on the north side of a fence or wall, so as to still further continue the season of supply. The pots in either case should be plunged in ashes to the rim, attending carefully to watering and syringing. When the fruit is ripening it is well to return the trees to the house until the fruit is gathered, as this in the case of the Peach, Nectarine, and Plum will enhance its quality; but in the case of Pears it is not advisable to return them to the house for ripening. When the fruit is gathered from Cherry, Apricot, and Pear trees they will be benefited by placing them outside, treating as advised above.

PLANT HOUSES.

Greenhouse.—Zonal Pelargoniums, both single and double, are indispensable for conservatory decoration and for cutting from through the summer, and are particularly valuable in late summer and autumn. Their continuity of flowering may be ensured by supplying them with weak clear liquid manure once a week. Fuchsias that flowered early and have had a rest may have the shoots shortened a little, cleansing with an insecticide if there is any trace of insects, and have an inch or two of the surface soil removed and apply some fresh and rich soil, placing the plants in a house or pit where they can be kept rather close and moist by syringing overhead morning and afternoon, and they will break freely. Cuttings of free growth should now be inserted for next season's flowering, inserting them in sandy soil, where they can be kept close and moist, potting off when rooted in 3 or 4-inch pots, employing good loam with a fifth of old cow dung, a similar quantity of leaf soil, and about a sixth of sand. The plants should be placed near the glass in a temperature of about 50° through the autumn, and in about eight weeks will need shifting into 6-inch pots.

Pelargoniums.—Cuttings of the Show varieties should now be taken if not already done, inserting them round the sides of 6-inch pots in sandy soil, and placing in frames or on shelves in the greenhouse. When they commence growing pot off singly in good yellow loam into 3-inch pots, with a sixth of well-decayed manure and sand sufficient to keep the soil open. Place near the glass, and be careful not to supply too much water. Bridal Bouquet and Duchess of Bedford should be grown in quantity for cutting, as they are very floriferous, early-flowering, and force admirably.

Camellias.—These will for the most part have set their buds, and any that need shifting into larger pots should be attended to in this matter before the buds are large, or they will drop if they have attained the size of a full-grown Pea. For compost there is nothing better than sandy loam full of fibre, but where this cannot be had it is better to employ the best fibrous peat without any admixture, in either case using the compost fresh, so as to afford the plants the benefit of the decaying fibre. Long-stacked loam or peat is not suitable. Do not disturb the ball further than to remove the crocks and the loose surface soil with any not occupied with roots, and ram the fresh compost so as to make it quite as firm as the old ball, leaving sufficient space to allow of copious watering, and above all things avoid overpotting.



UNFINISHED SECTION BOXES.

THE great value of Mr. Cheshire's communications must be my excuse for asking him through you to explain the following sentence more fully:—"This fact condemns the zinc queen-excluder as always reducing the honey yield." The fact alluded to seems to be, that if the space between the hive and rack is all open the boxes in the centre over the brood nest are sealed most quickly. Would not the same occur if a zinc excluder was used? Has Mr. Cheshire found it, as a matter of experience, that the zinc excluder lessens the honey yield materially? What size of sections does Mr. Cheshire use? Does he find that by leaving the space between the rack and hive all open without narrow queen-excluding slits that pollen and brood are not stored in the sections? I make this inquiry more particularly, as I am purposing using sections next year, and that I have had two shallow 4-inch 20-lb. supers spoilt this year by brood and pollen. The first was entirely open to the hive (a frame hive 12 inches deep, 14½ inches wide, ten frames—in fact, a Woodbury deepened; last year's swarm. The latter was on an old-fashioned Sadler's box hive with top side communications; a swarm of this year. A hive of Mr. Cheshire's (Crystal Palace Prize) gave me the largest amount of super honey—50 to 60 lbs.—of this year. The giving-way of the bench legs prematurely spoilt my honey harvest, precipitating six hives into the Potato bed, supers and all. Perhaps I should have added above that three years ago I found a queen in a super protected by a round-holed zinc queen-excluder. She had only utilised one bar of drone comb. I cannot therefore say if she was fertilised or not, but I conclude so. I thank Mr. Cheshire for his excellent articles, and hope he may long continue to contribute to our Journal, thereby making it the most valuable bee journal.—H. C. RIPLEY, *Minster Lovell Vicarage.*

ARTIFICIAL COMB FOUNDATIONS.

HAVING this year given these a fair trial in supering, I am happy in being able to add my mite of testimony to their value. The invention of artificial comb foundations is one of the greatest in apiculture—indeed, I can think of none equal to it, save, perhaps, the introduction of large hives, which cannot properly be called an invention. The use of the foundations in question make supering easy for both bees and bee-masters, and higher praise than this cannot well be given. With a view to give them a fair trial on a large scale I ordered many pounds of Mr. Raitt, but owing to my being in a very weakly state of health I was unable to carry out my intentions to their full extent; however, some of my neighbour bee-keepers used it up in their management with the greatest possible satisfaction and advantage; and so far as my efforts have extended, the foundations have been quite satisfactory. Without sagging, twisting, or curving, they have stood the test and strain in every experiment. I ordered twelve glasses 12 inches deep with lids, in which the foundations in full length skeletons were fixed before they were placed on hives. The bees in hives ready for supering adopted them at once, and commenced to elongate the cells at bottom and gradually worked up to the lids. The glasses are 5 inches wide at bottom, 7 inches at top, with a considerable swell or rotundity below the lids, and when well filled weigh 19 lbs. These glasses are handsome to look at, but from a profitable point of view they would be improved by having the lids 9 inches wide instead of 7 inches. Thus larger skeletons could be introduced, giving the bees less work in extending their combs to the circumference of the wider

part of the glasses. In every case of supering the use of the artificial foundations properly fastened will be found very advantageous, specially so in supers with perpendicular sides or in frames or sections. The larger the skeletons used in supers the sooner they are filled. The thicker kind of artificial foundations used for brood comb I have not tested. At the swarming season I was hardly able to do anything, but my neighbours who used up almost all the brood foundations I had in their apiaries speak well of it.

Natural comb is a costly material to both bees and their masters. Much honey is consumed by bees in order to secrete or manufacture wax. Baron Liebig calculated that 1 lb. of wax was obtained at the expense of 20 lbs. of honey. I cannot confirm or contradict this statement. I know that a great deal of honey is spent in the creation of wax, that hives engaged in building combs store up comparatively little honey, and that hives filled with combs store up honey very fast. Swarms on being cast into empty hives are placed at a great disadvantage for a few days, having no cells for eggs and no cells for honey. There is also the disadvantage of so few bees being able to work till the foundations of natural combs have considerably advanced. One "great bee" lays the foundation of the city, other bees build on it, but very few builders can be employed for a time. The introduction of a few sheets of good and clean foundations must be a very great advantage to swarms on first being hived. I heartily commend their use to the notice of our readers, and also the study of their application and advantages.—A. PETTIGREW, *Bowdon, Cheshire.*

BEE MANAGEMENT.

I SHOULD be glad if you could give me some advice as to my bees. I have a swarm hived in a Stewarton on the 27th May; two boxes and super are filled and sealed. I have added a fourth box where they are busy; I should think it weighs 50 or 60 lbs. Can I take any honey besides the top super box? if so, how may it be done? I have also a large straw hive of last year's second swarm which have not swarmed this year, but the hive weighs 50 lbs. or more. Would it be wise to drive the bees into a hive of the same size and feed them? if so, how should I feed them? I have only the parent stock of my Stewarton swarm, otherwise I would unite them; and the parent stock is a small straw hive, and is sufficient weight to stand the winter. Last year in taking a stock of the previous year I found much brood, and was much troubled to drain the honey. Can you recommend me to a good extractor—a cheap one? I have only read of them—have not seen one—and would it answer my purpose better than draining through sieves, which I find is tedious work, and where you have 50 or 60 lbs. to drain, it takes some time? If you would kindly oblige in your earliest issue I should feel greatly obliged.—A CONSTANT READER, *Salisbury.*

[As we understand the matter your swarm in a Stewarton hive has filled two body boxes, and has since had both a super and a nadir added. The super alone may be expected to be filled with virgin honey, but later in the season you may safely take also the upper body box, leaving the bees to winter in the remaining two. If there be brood in the upper body box leave it till hatched, and feed the stock to a good weight for wintering. If comb foundation has been freely used there will be little or no drone comb in the lower boxes; otherwise there may be too much to make it advisable to winter in them. In that case rather remove the nadir and leave both body boxes to the bees. Why did you not place supers on the large straw hive that has not swarmed and the honey of which you now desire to appropriate? Even a stock weighing 50 lbs. would scarcely yield honey to pay for the trouble and expense of feeding up again to a good weight. Old combs, brood, and pollen would probably reduce the nett weight of the extracted honey to 20 or 25 lbs. Our advice would be either to leave it alone as a keeping stock, or transfer it to a bar-frame or Stewarton hive—that is, save all the good empty comb and brood and take the best of the honey. Driven stocks fed up in autumn usually have too much drone comb to make good hives next year unless comb foundation be used.

We cannot recommend an extractor cheap enough to pay for the small quantity of honey you will have to drain, and as you have no bar-frames you might find that, even with an extractor, your troubles were not ended.]

DRIVING BEES FROM SUPERS.

ON cutting supers of comb from hive some honey cells are often broken, and thus the faces of the supers are disfigured with honey. Let me remind inexperienced bee-keepers that such supers should

be raised by wedges about three-eighths of an inch to let the bees clean out the broken cells. In less than an hour the bees should be driven from the supers. Formerly I used to give the bees a sniff of sulphur in the smoke of fustian rags, which makes them run from the supers into their hives as fast as they can. Instead of sulphur I now use powder or saltpetre. These are dissolved in warm water, and brown paper is dipped in the solution and dried. Mr. Addey calls it "touchpaper." A small piece the size of a watch rolled up, lit at one end, and the smoke of it blown into a super, will drive every bee out in a few minutes. Where practicable the smoke should be blown in from the top of supers. I removed some time ago a glass super with a wooden top weighing 19 lbs. I bored a hole through the top with a small gimlet, and applied the smoke through the hole. The work of ridding supers of bees is easily and speedily done, and this touchpaper will be useful in many operations in the apiary.—A. PETTIGREW.

FLOWERS FOR BEES.

I HAVE a flower in my garden which bees seem to be exceedingly fond of. Although I do not keep any, I never approach the flower without finding a large number of ordinary bees as well as the humble bee at work. The flower is an *Epilobium* or Willow Herb, and very much resembles the common Willow Herb found in ditches and damp places, but I believe it is the French Willow Herb. The flowers are produced in long spikes and have been unusually fine this year; some of the spikes nearly 3 feet in length, and have continued in bloom for the last five weeks or more. There is no trouble in propagating it, but on the other hand it spreads too rapidly to be grown in the flower garden, but if the cottager or bee-keeper could find an out-of-the-way corner for it I think it would be a valuable acquisition.—AMATEUR, *Cirencester.*

APIS DORSATA.

(Translated from the *Bienenzeitung*; Communicated by Mr. Alfred Neighbour.)

BEES FROM THE ISLAND OF CEYLON.

PROFESSOR FRANK BENTON sent me the other day from the Island of Cyprus a copy of the periodical the "Ceylon Observer." I noticed in this journal an article by him, marked in blue pencil, to which he evidently wished to direct my attention. As this article will doubtless interest most readers of the "Bienenzeitung" I have made a translation of it. The above heading of this article is followed by a second one as follows:—"Of *Apis dorsata*, the most marvellous bee of the world, a few colonies have been discovered and captured by Mr. Frank Benton. We are glad to find," the article continues, "that Mr. Benton has at last been successful in procuring *Apis dorsata*—called Bambara by the natives, which he describes as the most valuable bee of the world. Mudaliyar Jayetellike hired a few Cingalese bee-hunters, who accompanied Mr. Benton to the Bambaragala, a chain of mountains thirty English miles from Kurunegala, and there after an interesting journey attended with a good many difficulties, of which Mr. Benton will, no doubt, give an account later on, he was fortunate enough to procure two colonies of *Apis dorsata*. On account of the great interest that Mr. Benton takes in this bee, which he considers an excellent honey bee, he has decided to postpone his departure for Cyprus for a fortnight, and intends to return to Kurunegala once more. He left us a few workers of *Apis dorsata* preserved in spirits, which can be seen at the office of our editor. The Cingalese were greatly astonished at the way in which Mr. Benton handled these bees. If not properly treated they will sometimes get very savage, when they will pursue their enemy a long way. Mr. Jayetellike declares that as regards the management of bees he has learnt more from Mr. Benton in a week than from other sources in many years."—(Signed) C. J. H. GRAVENHORST.

LETTER FROM MR. FRANK BENTON.

"Steamer *Jupiter*, coast of Syria,
"23rd May, 1881.

"I have encountered a great many adventures, and have learnt much concerning the bees of these eastern countries, of which I should like to give you a full account if it were possible, but you will soon understand why I have not written to you before.

"Leaving Java I proceeded to Ceylon *via* Singapore, and immediately after my arrival I started for the jungle—the mountainous or woody parts of the island—and with the assistance of a few natives I soon discovered a nest or colony of *Apis dorsata* in a tree about 60 feet high. This was the first time I got a sight of these wonderful bees, of which I did not see a single specimen during my five-weeks stay in Java. I made numerous excursions afterwards, during which I discovered not less than thirty-five nests of them, but mostly on

high rocks or trees, which made their capture all but impossible; nevertheless, with a great deal of trouble and at the risk of my life I succeeded in obtaining two colonies which had settled on the rocks at a height of at least 100 feet from the ground. I afterwards caught two more colonies in trees.

"The *Apis dorsata* ought to be classed among yellow-coloured bees (to which indeed all the three Indian species belong), as three of the rings under their wings are of an orange-yellow colour. This, and the contrast caused by the rest of the body being black and the wings bluish-black, accounts for their being very pretty bees. Their body in the live state is about seven-eighths of an inch long, but slender like the bodies of hornets. They are swift on the wing, and when angry they make a hissing noise exactly like angry hornets. Smoke causes them to leave their combs and frightens them very much. If you avoid shaking them or blowing against them it is possible to remove a handful of these bees from the cluster below without any danger of being stung; they leave the hand without doing any harm, and return to their combs. The least shaking, however, puts them into a rage, making them rush out like angry hornets in order to discover the disturber of their peace and to sting him. But they are rather clumsy in using their sting, and are therefore easily got rid of by a quick movement of the body. If a bee has stung, however, they appear in large numbers and pursue for a long distance, firmly determined to make use of their sting. Put into hives with moveable frames and removed to the place where I had taken up my abode they at once behaved like domesticated bees, and properly treated they never attempted to sting, although I applied no smoke to the stocks during the few weeks they were under my care. As a matter of fact I never employed smoke when I examined my colonies, which was done almost every day when I was well, every comb being then taken out of the hive and replaced. Their sting is not larger than that of *Apis mellifica*; in any case there is no appreciable difference between the two, and the sting of *Apis dorsata* is less painful. The tongue of the latter is only a little longer than that of *Apis mellifica*, although its body is half as large again. They appear to be industrious at their home in the forest, but they did not work so well in hives; they seemed to think that I would continue feeding them.

"The drones are very hairy, and of quite a light grey or brown colour without the dark-blue-looking wings of the workers. They are reared in the same cells as the worker bees, twenty to the square inch (English measure) by $1\frac{1}{2}$ inch in thickness, and are therefore not longer than worker cells, though somewhat bigger. The bees do not commence their excursions until after sunset, and continue to fly out until it is quite dark, hence the belief of the natives that these bees collect honey during the night only. The queen is somewhat larger than the workers, but not extraordinarily large. I had much hard work and experienced some dangerous adventures in the attempt to obtain the four colonies. One day our company was attacked by a cheetah, which had been wounded by one of my men. A young lad who went to kill the beast with an axe sustained serious injuries inflicted by the teeth and claws of the enraged animal. We destroyed the cheetah, which otherwise would have killed the poor lad in a few moments. We had far advanced into the jungle where no surgical aid was obtainable, so I was obliged to dress his wounds as well as I could. The last news of him gave little hope of his ultimate recovery; the hot weather, too, was against him. On another occasion a wild elephant tore an umbrella out of a man's hand, and would have killed him if he had not quickly climbed upon a tree, where he remained a prisoner until the whole party arrived, when the elephant was frightened away by rifle shots.

"In order to secure the bees I had to climb upon rocks and into trees, which was very dangerous work. Two of my colonies were taken from 'Bambacragalle' or *Apis dorsata* rocks. We had to climb up perpendicular rocks by means of ladders improvised by tying together several poles and crosspieces until we were able to reach the highest point. The walls were perpendicular on all sides down to the base of the rock, more than 100 feet below us. Further down in the valley white clouds appeared, while the stars and the moon were shining above us. At this place, surrounded by semi-savages and half-naked men, I obtained these remarkable bees. After all this labour and danger I was attacked by fever, caused by having been exposed in the rain during a thunderstorm in the night while I was on a high tree in the forest for the purpose of catching bees.

"I may explain here that I consider the night the most suitable time to catch these bees. By applying a little smoke I soon made them manageable.

"When I was taken ill I was far away in the primeval forest. As I did not get better in the course of three or four days I was obliged to walk to the nearest road, a distance of several miles. Thence I travelled some miles on a cart until I reached a village, where I was able to take the mail coach, which took me to the nearest railway station at a further distance of twelve miles. I at length reached Colombo, having suffered greatly on the journey. When the fever left me a few days afterwards, after I had taken some powerful doses of quinine, I was in a very weak state. All this time my bees had been very much neglected, and when I went on board the French steamer they were not in a fit state for the voyage. In the Red Sea I had another attack of fever, but arrived in Beirut at last. Singularly enough the bees were still alive, although their number had decreased considerably. During my stay at Beirut, where I had to wait thirteen days for a steamer to take me across to Cyprus, they

dwindled away, and I have now only dead specimens left of *Apis dorsata*.

"I have, however, still one colony of *Apis florea*, which remain in good condition.

"From what I have seen of *Apis dorsata*, I am inclined to think it very questionable whether these bees are as productive as *Apis mellifica*, though I have found 40 to 50 lbs. of honey in one stock.

"I send you a hottle of these bees; please take some out for yourself and forward the remainder to Mr. E. Cori.*

(Signed) "FRANK BENTON."

* This letter is addressed to Mr. A. Schröder, jun. The Editor is very much obliged to Mr. Schröder for kindly sending it to him.

"All bee-keepers will regret with me Mr. Benton's failure. Even if *Apis dorsata* had not been of any immediate value to bee-keepers in Europe there can be no doubt it would have contributed materially to enlarge the theory of bee-keeping. The *dorsata* being a species of the genus *Apis*, the cross-breed of *dorsata* and *mellifica* would be real hybrids. The study of these hybrid bees would not only have enriched science, but from reasons easily to be guessed they would also have been of practical importance, producing larger bees, &c. At the meeting in Breslau I expressed myself decidedly against the expenditure of large sums of money for the purpose of procuring *Apis dorsata*, because I know positively that this bee does not prosper in our summer, and is quite unable to survive our winter. In the interest of science, however, I trust that no opportunity may be lost to procure *Apis dorsata* for us if it can be done without incurring heavy expense; for example, through a traveller, a missionary, &c. I shall be happy to give anyone interested in this matter full information as to how this bee may be introduced into our country and kept here.

(Signed) "W. VOGEL."

TRADE CATALOGUES RECEIVED.

W. Cuthush & Son, Highgate, London.—*Catalogue of Bulbs.*

Hogg & Robertson, 22, Mary Street, Dublin.—*Catalogue of Hyacinths and other Bulbs.*

Todd & Co., 7, Maitland Street, Edinburgh.—*Catalogue of Bulbs.*

Dammann & Co., Portici, near Naples, Italy.—*Wholesale Catalogue of Vegetable and Flower Seeds, and Bulbs.*



New Melon (W. S.).—The fruit you have sent is a little over-ripe, and its flavour would have been better a few days ago. The rind is smooth, pale orange in colour, and very thin, the flesh being also pale. It is extremely juicy, sweet, and refreshing, but not of rich flavour. It will probably be a useful Melon, but is not likely to take high rank among the best varieties. Its fault is a deficiency of flavour and a too large seed cavity.

Disfigured Maple Leaves (L. C.).—These are covered with minute galls, produced by a mite allied to those described in the last article upon garden insects. The particular species attacking the Maple is named *Phytoptus myriadeum*; it is nearly allied to the species common on the Sycamore or Plane. A peculiar circumstance with these galls is, that they are crowded together in some of the leaves to a degree which checks their development.

Cucumber Seed from Diseased Plants (H. Hoskins).—Though we are not prepared to state positively that seed saved from diseased plants will perpetuate the disease so that it will appear in the progeny, yet we think it likely that seed saved from such plants will be imperfectly developed, and the plants resulting will be weak and more susceptible of attack by disease than plants from seed of healthful plants. We certainly should not save seed from diseased plants.

Bouvardia Treatment (Idem).—To grow these plants satisfactorily and have them flower in the winter they require an intermediate temperature, or 55° to 65°, and 70° to 75° from sun heat. Cuttings of half-ripened growths strike freely in spring in gentle bottom heat. Pot off the cuttings singly when rooted, growing them near the glass where there is a genial temperature. Stop them when a few inches high, and again when about 4 inches of growth has been made. When the plants are strong plant them in a bed of turfy loam in a frame, keeping them well supplied with water, and ventilating freely in favourable weather, withdrawing the lights about the middle of July until the middle of September, then lift the plants carefully, and pot in 7 or 8-inch pots in good loam.

Paradise Stocks (B. J.).—There are several stocks called Paradise stocks. They are all varieties of Apples of more or less dwarf and slender growth, and arrive at a blossoming state early. This precocity they in a great measure transmit to the varieties of Apples that are grafted on them, and hence are used largely by nurserymen.

Calceolarias Dying (H. B.).—You will do well to obtain cuttings of Calceolarias from a healthy stock, and insert them in cold frames early in October. Your plants are exhausted and incurable. Further, your soil does not appear to be suitable for Calceolarias, and you will find trenching 18 inches or more deep, placing 6 inches in thickness of good manure at the bottom of each trench, beneficial. If the plants are well prepared this will sustain them throughout the season, and they will remain healthy.

Roses Unhealthy (Idem).—The spots and perforation of the leaves are the result of a shrinking of the tissue, and the cause of this is poverty of the soil and drought. The soil in which the Roses are trying to grow should be saturated with liquid manure now; and in the winter, if the surface soil can be removed and rich compost and a covering of manure added, healthier growth and finer blooms will follow—that is, if pruning is done properly and no insects are permitted on the plants.

Strawberries (*A. C. Wilkin*).—The whole of the pages you have quoted do not, we think, contain the articles you require. We presume you want those on Strawberry farming, of which there are five preceding those you have read, and the numbers containing them can be sent on receipt of 1s. 3½d. in postage stamps.

Plums and Cherries (*Hereford Reader*).—If we understand your question rightly you desire trees that will be profitable by the sale of the fruit rather than a number of different varieties for affording a succession of fruit in limited quantities at one time. We advise you, therefore, to plant six trees of the Victoria Plum and six of the Bigarreau Cherry. If you order the trees early, say in September, stating that you require them extra strong, the proper kinds will be sent to you at the right time for planting.

Stands for Asters (*Aspiro*).—Assuming the blooms are of large size, as they should be for exhibition, stands that are suitable for Chrysanthemums will answer your purpose. Those for six blooms are a foot long, for twelve blooms 2 feet long, for eighteen blooms 3 feet long, and for twenty-four blooms 4 feet long; the width in each case being 18 inches; height at the back 6 inches, and in front 3 inches. Stands of this size will also do for Roses, and you may therefore possibly find them convenient for other purposes than the one immediately in view.

Old Pear Trees (*Puddle*).—You do not give us any idea of either the size or age of the trees, nor are you certain what stocks they are on. Assuming they are on the Pear, as you suppose, we think the simplest method to adopt, and in the end the best, will be to thin out at once a number of the overcrowded branches, and then permit the trees to grow unchecked and form standards. In the spring, however, it will be wise to examine the trees and rub out any growths that may issue from the stems from where the branches have been severed. Beyond that, and thinning out an occasional branch, we should do no pruning. If the growths are left their entire length and are sufficiently thin for the sun and air to act on the foliage natural fruit spurs will form, whereas if you prune—that is, shorten the shoots—you will only produce a further growth of wood. Root-pruning such trees seldom results in the end desired, and is not profitable.

Grapes Cracking (*Idem*).—The variety you name is rather prone to crack on account of the thinness of the skin, which cannot resist the pressure of the sap that is supplied to the berries. Rather heavy cropping has a tendency to prevent cracking, so has cutting notches in the laterals on which the bunches are hanging, the same effect being produced by removing some of the leaves beyond the bunches. Keep the atmosphere of the house rather dry. Sow the Smilax seed in spring in light soil, and place the pots in a heated frame or propagating house, keeping the soil always moist; yet after all your care the seeds may not germinate.

Gloxinias after Flowering (*A. A. M.*).—Keep the foliage of the plants fresh as long as possible by applying water judiciously. For a short time the plants will need nearly as much as when they were flowering, but on the first signs of discoloration the supply must be gradually lessened, but at no time permit the soil to be dust dry. When the foliage has died the plants may be wintered in the warmest part of your greenhouse, keeping the soil nearly dry. They may be placed under the stage, but laid on their sides if drip falls from the plants above.

Potting Cyclamens (*Idem*).—Your plants that are just starting into growth should be turned out of the pots, and have as much soil removed as can be done without injuring the roots materially; then place them in perfectly clean and well-drained pots, using a compost of two-thirds of turfy loam, the remaining third being composed of peat, leaf soil, and dried manure, adding also silver sand and crushed charcoal freely to keep the whole porous. The soil should be in a healthy state as to moisture when it is used—that is, neither too wet on the one hand nor too dry on the other. This is important. After being potted the plants should be placed in a cold frame and kept rather close for a week or ten days, shading them if hot weather prevails. They must be watered carefully, as an excess of moisture until roots are produced for absorbing it is pernicious. Syringing daily except in dull weather is beneficial and lessens the necessity for saturating the soil. As soon as fresh roots reach the sides of the pots the plants will need more water, especially if, as they should be, they are in a house having a temperature of not less than 50°.

Propagating Marguerites (*An Old Subscriber*).—If you well drain some flower pots, protect the drainage with a little moss, fill the pots two-thirds full with a compost of unsifted turfy loam and leaf soil, and on this place an inch or two of lighter soil finely sifted and mixed with half its bulk of sand, pressing it rather firmly, then surface with a layer of pure sand, and water the pots thoroughly through a fine rose, they will be ready for the cuttings. These should be about 3 inches long, the leaves being divested for a little more than half the length of each cutting, removing any flower buds there may be, then insert the cuttings firmly an inch apart, and give another thorough watering. If the pots are placed in a frame and kept close for a week or so, shading to prevent the foliage flagging, nearly every cutting will emit roots. The plants must then have more air, and be removed to the vinery on the occurrence of frost. The present is the right time for inserting the cuttings. The yellow form is perhaps not quite so hardy as the white, but neither of them are difficult to strike and preserve, while both are of easy culture.

Vine Unhealthy—Removing Laterals (*Yorkshire Curate*).—There is no red spider on the leaf sent, but the Vine is evidently in an unsatisfactory state. The root-action is defective, but whether this has resulted from an excess of water or the reverse we are unable to say. Examine the border, and if it is at all dry at a depth of 2 feet apply water in sufficient quantity to penetrate the entire mass of soil. Surface roots should also be induced by placing fresh soil and wood ashes in contact with the roots, covering it with rich manure. As a rule amateurs err by planting Vines in inside borders, as only good cultivators can manage them well thus planted. A safer and easier course is to plant outside, and, the soil being good, the Vines are almost certain to grow if they have the right treatment inside. This consists in judicious ventilation, especially opening the lights early in the morning, maintaining a genial atmosphere by sprinkling the paths, walls, &c., of the house once or twice daily in hot weather, and keeping the foliage clean and thinly disposed, with moderate cropping. As a rule the principal laterals should be from 15 to 18 inches apart up each side of the rods; the points may be pinched out at one or two leaves beyond the bunches according as there is space for leaf-development. Those laterals that bear no bunches may be stopped at about the sixth leaf; the sub-laterals that follow should be pinched at the first leaf—that is, the moment a leaf is seen as large as a shilling pinch off the growth, leaving that leaf only. By continuing this practice throughout the season overcrowding is prevented and fruitful wood with fine foliage produced. Let the laterals on the sickly Vine, however, grow freely now, removing some of the bunches if they are numerous. If the laterals on the other Vines have been neglected they

must not be removed in large quantities at a time, but gradually, cutting a few off every day, and this only to admit the sun to the principal leaves. You will probably do well to train a young cane from a healthy Vine for providing a rod in place of the unhealthy Vine should it not recover, as a healthy Vine planted outside will support two rods as well as one. The spots are the result of not admitting air sufficiently early on the mornings of hot days.

Socotrine and Barbadoes Aloes (*Inquirer*).—The species supposed to yield Socotrine Aloes is *A. socotrina*, but some doubt still exists as to the true source; it is, however, well known that this plant grows abundantly on the island of Socotra, and about the Straits of Babelmandel, whence the supplies of the drug are obtained. The preparation is much the same as is practised at the Cape, but instead of being evaporated in iron pans by the aid of artificial heat, it is said to be performed by exposure to the sun. Barbadoes Aloes is procured from *A. vulgaris*; but *A. socotrina*, *A. purpurascens*, and *A. arborescens* are also cultivated for the purpose. This variety of the drug is obtained either by boiling the juice to a proper consistence, or by chopping up the leaves and forming a decoction with water, which is afterwards evaporated; in either case, when the proper consistence has been obtained, the substance is poured into calabashes and allowed to concrete. A superior variety has been got by the spontaneous exudation and inspissation of the juice. The composition of a pure specimen of 100 parts of Socotrine Aloes consists of 85 of a bitter extractive substance called aloesin; 2 of ultimate of potassa; 2 of sulphate of lime; 0.25 of gallic acid; 8 of albumen and traces of carbonate of potassa, carbonate of lime, and phosphate of lime. Aloesin is very soluble in water and alcohol, but slightly soluble in ether, and quite unaltered in the fixed and volatile oils; and it possesses in an eminent degree the bitter taste and purgative property of aloes. Aloes is one of the most valuable remedies, being tonic, gently aperient, or purgative, according to the dose.

Names of Plants (*W. B.*).—1, *Campanula Rapunculoides*, Creeping Bell-flower; 2, *Fumaria officinalis*, common Fumitory—this plant was formerly considered a valuable antiscorbutic, and much used in obstructions of the viscera. (*F. J.*).—1, *Linum grandifolium rubrum*; 2, *Leptosiphon rosens*; 3, *An Enothera*, but as all the flowers had closed we are unable to determine the species or variety. If the plant is perennial it is possibly *Cl. Fraseri*. (*A. T.*).—*Rhus cotinus*, commonly called the Smoke Tree from the peculiarity of its inflorescence, of which you send a good example. (*E. E.*).—1, *Erythraea Centaurium*, common Centaury, not a Gentian; 2, *Chlora perfoliata*, Perfoliate Yellow-wort; 3, *Vicia sylvatica*, common Wood Veitch; 4, *Epilobium angustifolium*, Narrow-leaved Willow herb, certainly wild; 5, *Erigeron acer*, blue Erigeron, not a Thistle. There is little difficulty in determining specimens that arrive in such good condition as those you have sent. (*W. H. W.*).—1, *Picus repens*; 2, quite withered; 3, *Asclepias curassavica*; 4, *Habrothamnus fasciculatus*; 5, *Maurandya Barclayana*; 6, insufficient without flowers. (*W. N.*).—1, *Achillea Ptarmica flore-pleno*; 2, *Lilium Batemannae*; 3, *Bryonia dioica*; 4, *Matricaria inodora*; 5, *Epilobium angustifolium*. (*R. P.*).—1, *Saponaria calabrica*; 2, *Monarda didyma*; 3, *Sedum carnenm*; 4, *Nerium Oleander*.

A Hive without Honey (*J. B. G.*).—Evidently something has been wrong in the stock hive or the management of it, seeing it yielded only 1 lb. of honey on being turned out twenty-one days after swarming. As the swarm, too, is at starvation point you think the queen is too old and lays drone eggs only. If the queen was a mere drone-breeder before swarming the hive would never have swarmed at all. If there is nothing but drone brood in the hive kill the queen and unite the bees to the turn-out. Possibly both swarms united would make a good stock for another year; but even if both swarms get young queens it would be difficult at this late season to build up two good stocks from the bees now, as you say, at starvation point. Young queens may be had from those who sell them, the prices usually ranging from 5s. to 10s. each.

Driving Bees from Supers (*Inquirer*).—This subject is practically and concisely treated by Mr. Pettigrew, whose communication in our present issue embraces the question you have submitted.

White Bees Thrown Out (*H. M., Southport*).—The bodies you enclose in your communication are, as you suppose, drone pupae, and their ejection simply indicates that the honey yield has practically ceased, and that the bees have given up all idea of colonising for the season. The destruction of drones proves that the queen is all right, while it by no means indicates that the hive is deficient in store, but it is always wise to look within to ascertain the condition of things when these white bees are seen. The throwing-out of worker pupae and the eating of eggs and young larvae must, on the contrary, however, be always regarded as a certain indication that the larider is most unsatisfactorily furnished, if indeed it does not proclaim imminent starvation. If bees are constantly fed they will suffer their drones to live undisturbed until they form their winter cluster, when they simply turn them to the floorboard.

Glucose as a Food, &c. (*M. H. M.*).—Your queries cover much ground of general interest, and do not require an answer immediately, so that we purpose treating the question fully in a future issue.

Transferring and Uniting Bees (*Inquirer, Lindfield*).—It is certainly not too late to drive and transfer. The skeps, unless unusually large, will not half fill your Philadelphia hives, so that you may either put both lots into one Philadelphia hive or make two stocks of them, when feeding will be necessary. If the bees are helped until they have filled six or seven frames they will have done enough for successful wintering, but you must reduce your hive by a dummy. If you unite—and whether you should or not must be much determined by the position the hives are now occupying—take no trouble about the respective queens, as the bees will settle this matter for themselves.

COVENT GARDEN MARKET.—AUGUST 10.

OUR market is now quieter, the soft fruit being nearly finished, but best fruit is still in demand. Prices with few exceptions remain the same.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 0 to 2 6	Lemons.....	per case	12 0 to 18 0
Apricots.....	box	1 6 3 0	Melons.....	each	2 6 4 0
Cherries.....	per lb.	0 3 0 6	Neectarines....	dozen	4 0 10 0
Chestnuts.....	bushel	0 0 0 0	Oranges.....	per 100	4 0 8 0
Currants, Black..	½ sieve	6 0 0 0	Peaches.....	dozen	4 0 12 0
„ Red.....	½ sieve	3 6 4 0	Pears, kitchen..	dozen	0 0 0 0
Figs.....	dozen	3 0 0 0	dessert.....	dozen	0 0 0 0
Filberts.....	per lb.	0 0 0 10	Pine Apples....	per lb.	3 0 4 0
Cobs.....	per lb.	0 0 0 0	Strawberries....	per lb.	0 4 1 0
Gooseberries....	½ sieve	2 6 3 6	Walnuts.....	bushel	0 0 0 0
Grapes.....	per lb.	1 0 4 0	ditto.....	per 100	0 0 0 0

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	to 4	0	Mushrooms	punnet	1	0	to 1	6
Asparagus	bundle	0	0	0	0	Mustard & Cress ..	punnet	0	2	0	3
Beans, Kidney	½ lb.	0	3	0	6	Onions	bushel	3	6	5	0
Beet, Red	dozen	1	0	2	0	pickling	quart	0	0	0	0
Broccoli	bundle	0	9	1	6	Parsley	doz. bunches	3	0	4	0
Brussels Sprouts ..	½ sieve	0	0	0	0	Parsnips	dozen	1	0	2	0
Cabbage	dozen	0	6	1	0	Peas	quart	0	9	1	0
Carrots	bunch	0	4	0	6	Potatoes	bushel	3	9	4	0
Capsicums	½ 100	1	6	2	0	Kidney	bushel	4	0	4	6
Cauliflowers	dozen	0	0	3	6	Radishes	doz. bunches	1	6	2	0
Celery	bundle	1	6	2	0	Rhubarb	bundle	0	4	0	6
Coleworts	doz. bunches	2	0	4	0	Salsify	bundle	1	0	0	0
Cucumbers	each	0	4	0	6	Scorzonera	bundle	1	6	0	0
Endive	dozen	1	0	2	0	Seakale	basket	0	0	0	0
Fennel	bunch	0	3	0	0	Shallots	½ lb.	0	3	0	0
Garlic	½ lb.	0	6	0	0	Spinach	bushel	3	0	0	0
Herbs	bunch	0	2	0	0	Turnips	bunch	0	4	0	0
Leeks	bunch	0	3	0	4	Vegetable Marrows	each	0	0	0	2



POULTRY AND PIGEON CHRONICLE.

THE ROYAL COMMISSION ON AGRICULTURE.

THE Blue Book lately issued upon this important subject contains a digest and appendix to Part I. Of the evidence taken before this Commission, together with Reports of the Assistant Commissioners, presented to both Houses of Parliament by command of Her Majesty, and is printed by Messrs. Eyre & Spottiswoode, and may be obtained at the reasonable price of 10s. 6d. Upon introducing this subject to the notice of landed proprietors, their agents, and home farmers, we repudiate and ignore any points or matters which are frequently made the subject of political controversy, and intend only to take up these Reports with the view of illustrating and recording all the most valuable information we can find connected with practical agriculture. At the same time we must congratulate all those having an interest in this Commission, not only upon the results, but also upon the fact of their having the opportunity of obtaining so easily and so cheaply a reliable work of such importance and extent affording information connected with agriculture and its present depressed position.

We have the reports from nine Assistant Commissioners, besides Sub-Commissioners, each of whom have taken evidence in every county and district in England, Wales, Scotland, and Ireland; at the same time we have valuable evidence taken by them in France, Belgium, the Netherlands, as well as excellent reports from America, Canada, California, &c. These Reports contain evidence given by some of the most practical and responsible landowners and tenant farmers to be found in each of the districts and countries to which we have referred; and in order to forward the object we have in view—viz., that of instructing the home farmer as well as the landowners generally upon the various systems of farming pursued all over the kingdom, as well as that of parts of the continent and America, we have to consider the difficult and depressed condition of agriculture in the United Kingdom, and the enormous mass of information taken under the Commission which goes to prove this. We must at the same time say that it also gives valuable evidence relating to the practical farming of every county and district, which is calculated to enable persons not only to understand the causes of this depression, but to enable them to successfully encounter them, so far at least as may be possible, barring adverse seasons. Amongst the various causes to which the present position of farming may be attributed we find that the question of high rents, defective tenures, and damage by game, &c., are placed in a prominent position by the tenant farmers. We must, however, discard these ideas in speaking of the position of

the home farmer, and also of occupiers who farm their own estates, and consider only the causes of depression in agriculture in its entirety, and free from extraneous or collateral issues.

A succession of unfavourable seasons which have prevailed with more or less intensity in different districts and counties in the United Kingdom since the year 1874 has unquestionably been the chief cause of the difficulties and losses of capital by the occupiers of land—assuming, however, unparalleled proportions in the year 1879. Hence the principal reason why so many farms having been thrown on the proprietors' hands, and from this cause the question of management of the home farm and land in hand has become of more consequence than at any former period. We have, however, to contend against charges on the land at present which are extremely heavy, such as the poor rates, road rates, education rates, and local taxation generally, some of which charges are new to us, and unknown formerly. There is, again, the prospects of the corn-grower in this country which call for grave consideration; for several influences exist and are extending which render the production of some of our former standard crops unremunerative, or insufficiently so. The most serious of these influences is the foreign supply. It is overwhelming as regards the prospects of our home growth for several reasons. In quantity it is more than equal to the necessities of this country, even with a short yield of our own crop; and referring especially to Wheat, the quality of a considerable proportion is even superior to much of our own, but above all it can be produced and sold in our markets at a price that is ruinous to our growers. We are prepared to admit that at the time free imports of corn became law, farmers were seized with apprehensions that had not been realised until within the past few years, but it is obvious that the causes which exist now were undeveloped then, and in the progress of time must greatly extend. The telegraph, in maintaining harmony between supply and demand, is seconded by universal steam communication both on sea and land. Already in every market in England the home farmer finds his corn brought into competition with that of foreign production. It is also certain that the great corn-growing districts and provinces of America and Canada, as well as some of the continental States, will rapidly increase in their production, for they are not slow in availing themselves of the best of our stock and implements, which matters are especially set forth in the information obtained through the evidence given and the researches made by the untiring industry and perseverance of the Commissioners under the Royal Commission on Agriculture.

The home farmer as well as landowner must be aware that we cannot increase our acreable produce in adverse seasons, nor increase our area of production under agricultural depression. With us it is a question of price to a very great extent. Such, then, is the position in which we find ourselves with our standard crop—Wheat, and which is after all the principal rent-paying produce upon all the strongest and best loamy soils. By taking warning, however, in time we may postpone for a while the fate which, in the opinion of many, awaits agriculture in England, especially as regards the growth of Wheat. It is a common mistake to suppose that the business of agriculture is capable of the same developments that appertain to manufactures or trade. The farmer's factory is the immovable land, and although the soil is grateful for help and yielding to the skilful management of the cultivator (except in unfavourable seasons), yet Nature, which presides over all his works, will not be forced. High farming, as it is called, is not necessarily the best farming; but the best criterion of good husbandry is profitable farming. We have often observed that farming is so unlike trade or manufacture, or capable of yielding to the same expedients, for we cannot shut up our shop and tide over a season of difficulty; we must go on to the end as the owners and occupiers of our own land, whether it yields prosperity or adversity. We have no desire, however, to discourage the home farmer, because it by no means follows if the growth of corn is unprofitable upon the systems previously advocated that we should not alter our rotation or change our crops, and grow those kinds of produce—whether of cereals, pulse, fruit, or vegetables—which will yield the most profitable return.

Again, what reason have we to fold our arms and be satisfied with what we have done previously in the way of rearing live stock? The opportunity of improvement is always open to the home farmer, who feels few of the impediments and difficulties of depression by loss of capital, &c., like the occupying tenants under lease; his is a position not only of great simplicity, but also encouraging him to adopt any of those expedients which are going on around him which promise the best results. In the purchase of the best of every kind of live stock he has great encouragement not only to rear the most valuable of each kind of animal, whether of horses, cattle, sheep, or swine, but also to spend his time and abilities in studying how to feed and fatten

them to the greatest profit. As our Blue Book contains a mine of information on matters connected with agriculture of every kind, contributed by the most intelligent and experienced men, we have only to explore the mine, and endeavour to turn its products to the best account; and in continuing the subject, by searching the pages of the reports of the Royal Commission we hope to bring out all the necessary information found therein to enable the home farmer to continue his business with advantage in whatever district he may be placed.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Harvest work now predominates, and all other farming operations must in a great measure give way to cutting and carting the different crops. If, however, the weather should continue favourable we have no doubt that on many home farms Wheat, Peas, white Oats, &c., will be thrashed in the field; and it is a wise plan too, because it saves a certain amount of labour—that of stacking and thatching, by which expense is incurred if the corn is stacked in the usual way. During the operations of cutting the cereal crops it is not only important to cut them with the reaping machine, but the work should be done with the latest improved string-binding machine; because, although we have the advantage of the reaping machines without binding, yet in that case it is not done without some risk, unless we can find a staff of binders of sufficient number to keep pace with the reaping. We have noticed lately that large fields of Wheat have been cut and left on the land, which would employ the binders several days in tying and setting up in stooks. In the meantime, while work of this kind is going on, if heavy thunderstorms should occur followed by dull close weather the grain may sprout before it could be tied and set up. Herein lies the great value of the self-binding machine, for in the event of the corn being only cut when the straw is dry we incur no risk, such as occurs when the produce is allowed to lie on the ground.

We must not forget that at every opportunity when the horses do not or cannot work in the harvest field, that it is very desirable to employ them by ploughing and sowing stubble Turnips in the way in which we have often described in these columns—that is, by ploughing between the stooks of corn and drilling the seed and manure at the same time every evening as fast as the land is ready. In this manner we have grown crops equal in weight to those grown after green crops fed off, especially in such a favourable season as the present, when the temperature of the soil is not only high but the land in most districts moist, so that it can be worked fine with little labour, and thus insuring a quick vegetation of the seed. The odd horse or horses should be employed in horse-hoeing the crops of Swedes or Turnips which may require it. We have often driven the horse hoe with the knives set separately across the drills if hand labour has been scarce or otherwise employed. This plan will prevent the plants from becoming stunted, so that after a while the hand hoes may set them out. In some cases we have had this work done by the women in a satisfactory manner. In those cases where the Turnips are sown broadcast for any special reason, such as the failure of a first drilling, we have by sowing plenty of seed obtained a plant sufficiently thick to allow of the horse hoe cutting through them for the space of 18 inches and leaving a space of 9 inches, in which case we have preserved a regular plant, and they have been more easily singled than when the seed has been drilled.

As soon as the land intended for Trifolium is cleared of the crop previously grown sowing the three sorts should immediately take place, including the early, second early, and late white variety. The land should be clean and worked merely on the surface, obtaining only just loose soil enough to bury the seed, then leave the land rolled. This is the surest plan to succeed in obtaining a regular plant, and the likeliest way for the plants to escape the greatest and almost the only enemy—the little white slugs.

Hand Labour.—The work to which we have just alluded will employ all the men and women too, for when not engaged in harvest work singling root crops will find them full employment during the harvest period.

Live Stock.—Horses now engaged in harvest work, and making long days of severe and exciting labour, should be well cared for and accommodated in their airy loose boxes for the night. We do not approve of letting them lie out at night. For instance, on such nights as July 27th, when an unusual frost occurred, is it reasonable to suppose that horses during the daytime engaged in severe labour can be allowed to remain out on the meadows or parkland at night without sustaining injury either in the present or the future? We know the constitutions of valuable horses are often ruined without our suspicion or knowledge as to causes, the seeds of disease having been deposited by want of care and consideration in the management of the animals.

Sheep stock must not be neglected in harvest time, for on most farms the shepherd will be fully employed in tending the flock, especially of a breeding flock of ewes, and he should not under any pretext be asked to take part in the labour of the harvest field. At this time the rams will be turned in with the ewes, and these should have regular feeding with the most succulent food on the farm, such as Rape or second growth of Clover, and at the same time they may well be allowed a few cracked beans or cotton cake, as we find that when the ewes are well fed they are likely to bring more twin lambs.

Nor does this apply to any breed in particular. There has been great scarcity of grass, not only in the pastures for grazing the fattening cattle as well as for dairy cows; under any circumstances supplementary food has been required, and if no Vetches and Rape have been forthcoming the Mangolds or early Turnips may be resorted to, feeding not only the stock we have named but the fattening bullocks in the boxes also.

VARIETIES.

MARKING FOWLS.—Miss Kenrick desires to know the best method of marking fowls, so as to distinguish those of the same breed from one another. We shall be glad if our experienced poultry readers can supply the information.

— *THE DAIRY SHOW.*—We are glad that the Dairy Show will not this year clash with Oxford, or indeed come near it, as it is fixed for September 15th to 20th. The Judges for poultry and Pigeons are announced. Mr. T. C. Burnell takes Dorkings, Brahmas, and Langshans; Mr. Leno, Cochins, Leghorns, French, Plymouth Rocks, and the Variety class; Mr. S. Matthew, Game, Game Bantams, and Malays; Mr. Tecbay, Spanish, Hamburgs, Polish, Minorcas, Andalusians, Silkies, and Bantams; Mr. Sainsbury, Waterfowl, Turkeys, &c. The Pigeons are thus divided—Mr. Gresham takes Pouters; Mr. Esquilant, Tumblers, Archangels, Any variety, and Homers; Capt. Heaton, Carriers and Jacobins; Mr. Jones, Fantails, Nuns, Trumpeters, Magpies, and Runts; Mr. Gell, Barbs, Owls, and Swallows; and Mr. Ludlow, Turbits, Dragoons, and Antwerps. We are also glad to see that at the said Show Silkies, Minorcas, and Polish have classes to themselves.

— *PIGEONS FOR SHOWING.*—We would remind our readers that it is about time for those Pigeons which will be required for the great shows to be separated. We have, in common with many fanciers, often made the mistake of keeping our breeding birds too long at work. This impairs their health, especially that of cocks; they moult late and irregularly, are unfit for the autumn shows, and unfit again to be paired early in the spring. Of course it is vexatious to throw away a pair of valuable eggs, for often Pigeons breed so fast that before one pair of squeakers can possibly be taken from their parents another pair of eggs is laid; but if no common birds are kept to which they can be transferred, thrown away they must be. The cocks, as we have said, specially suffer from late breeding, for they continue to feed the squeakers after the hens; in fact, a good cock is constantly feeding for months, giving to successive pairs of birds not only all his own eaten nourishment, but all the digestive juices, and at the end of the time is sorely in need of care, rest, and good food himself.—C.

— *ILLUSTRATED BRITISH BALLADS.*—Part 7 of this excellent work, now being issued by Messrs. Cassell, Petter, & Galpin, contains Sir Walter Scott's "The Eve of St. John," Jamieson's "Fair Annie of Lochroyan," Thomas Hood's "Fair Ines," and the same writer's noted punning ballad "Faithless Nelly Gray," and Thomas Delone's "Fair Rosamond," each being illustrated by admirably executed engravings.

— *PACKING EGGS AND DEAD POULTRY.*—At the meeting of the Council of the Royal Agricultural Society, at which a Committee was nominated for drawing up a scheme for offering prizes for fruit and vegetables, as referred to in our gardening columns, the above subject was discussed; and on the motion of Mr. Jacob Wilson the Committee were empowered to extend the scope of their scheme so as to include dead poultry and poultry management, Mr. Wilson remarking that in the matter of packing eggs and dead poultry England is very much behind her foreign competitors.

— *NEW WHEAT IN SUFFOLK.*—At the Bury St Edmunds market last week several samples of new Talavera Wheat were offered, and in one case changed hands at 53s. per quarter. This sample was in very fair condition, and of good average weight. The mildew will, it is expected, seriously affect the late-sown Wheats, but the early crops will not be much deteriorated by it.

— *THE VALUE OF LAND.*—The *Estates Gazette* says there have been a considerable number of estates put up by auction during the past two or three months chiefly by order of the mortgagees, but very

few sales have been effected, the biddings not even reaching the amount of the mortgage. Amongst the many instances that could be given we may mention the Tiptree Hall property, the farm of the late Mr. Mechi; £3750 was the utmost that was offered for the estate, on which a mortgage of £4500 existed. We know of another case where £5000 was advanced on an estate, and when it was subsequently put up for sale, £3000 was the extent of the bidding. A property would be supposed to be worth £7000 or more on which to raise a mortgage of £5000. This shows how land has fallen in value, whether permanently or not no one can say for certain. In our results of country sales the amount reached in our last issue is only £644,617, whereas last year it was £1,013,464. We find estates bought in far more frequently than sold. Land is now a drug in the market—a fancy place may sell, but nothing in the way of an investment is looked at. A very melancholy state of things indeed.

— THE AMERICAN WHEAT CROP.—A cablegram sent from New York last Sunday states that the best judges say that the winter Wheat crop is about 20 per cent. short. It is difficult to get an accurate estimate of the spring Wheat. In some localities the yield will be very heavy, from 20 to 25 bushels per acre. Placing last year's yield at 100, this year's in these sections will be 105. In others it will be as low as 89, and in others 93. The most competent authorities place the crop at 15 per cent. short of last year's.

— A LARGE LANDOWNER.—Mr. Hamilton Desson, a Philadelphia manufacturer, appears, says a daily paper, to be a gentleman whom destiny has assuredly marked out for immortality. He has just concluded a contract by which he secures four millions of acres from the Board of Internal Improvement of the State of Florida. He has thus made the largest purchase of land ever effected by one person. His intention is to work out a great emigration scheme, which will have agencies in England, Germany, and France. America can now boast that among her citizens is not only the richest man but also the largest landowner in the world.

— THE ENGLISH HARVEST.—Harvest, says the *Mark Lane Express*, is now in rapid progress all over the southern and midland counties of England, and the weather has been very favourable. The high temperature of the latter portion of last week has enabled farmers to secure a considerable acreage of Wheat in the more forward districts, and has afforded exceptional facilities for thrashing in the fields wherever the exigencies of harvest work and the availability of traction engines rendered such policy practicable. There have been a few samples of the new crop of provincial exchanges, but they have been too exceptional to afford any trustworthy index as to probable harvest results. It is noteworthy, however, that the quality of these early samples has been variable, and that the yield in such cases is not reported to have been more than an average. It remains to be seen to what extent premature ripening, general thinness of plant, and the appearance of parasitical fungi at the eleventh hour, will detract from what has hitherto been very generally spoken of as an average crop of Wheat. It is also noticeable, as bearing somewhat on the subject, that the first results of the Wheat harvest in France and Italy are causing considerable anxiety and disappointment, the climatic influences of the season having been practically the same all over western and southern Europe; in eastern Europe, especially in southern Russia, the Wheat harvest is likely to prove both large and good. So far as the United Kingdom is concerned the position appears to be that, if the Wheat crop in England reaches an average, the actual quantity grown will be comparatively small, inasmuch as the acreage is known to be smaller than usual; in Scotland the Wheat crop has not, of late, been favourably reported on; whilst Ireland—where all cereal crops are said to be good—is not, to any great extent, a Wheat-growing country.

— PEAT CHARCOAL.—Messrs. Wells & Co., Barton-on-Humber, have sent us from their trial grounds specimens of Wheat and Turnips that have been grown solely by the aid of the above fertiliser, which was used at the rate of 5 cwts. per acre. The Wheat is a wonderful sample, exceeding 5 feet in height, with large heavy heads; indeed, a full crop of such heads would afford a yield of 7 or 8 quarters per acre, and this we should very much like to see

in field culture. The Turnips are remarkably large and clean, and we are informed they were never attacked with the fly, against which the charcoal is recommended as a specific. Have any of our readers had experience with this manure in ordinary field culture?

— LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.—We have received the schedule of prizes of this Association's Show, which is to be held at Louth on September the 8th. There are twenty-seven classes, and several special prizes, also a silver cup for local exhibitors. Mr. Godfrey, the Secretary, is indefatigable in his efforts to improve and extend bee-keeping in the county in which he resides, and he merits support and success.

— NEW HOPS.—The first pocket of this year's growth arrived in the Borough Market, London, on Tuesday morning last, consigned to Messrs. W. H. & H. Le May, Hop-factors. The quality and management were exceedingly good. It is grown by Mr. Amos Luck, Paddock Wood, Brenchley, Kent, and realised £15 per cwt., and has been forwarded to Messrs. Kitchin & Simpson, Hop merchants, Leeds.

POULTRY AND PIGEONS

POULTRY NOTES.

WE have frequently endeavoured to impress upon such of our readers as keep poultry for the sake of the eggs they lay, that no hens should be kept over after their second laying season. Many people who complain of a deficient supply of eggs would find matters mend if they paid attention to this point. Hens, as a rule, lay about an equal number of eggs in their first and second seasons, but after that the produce rapidly decreases. Every autumn one-half of the laying stock should be killed or disposed of, and their places filled up by pullets of the year. Now is the time to see to this. As the two-year-old hens show symptoms of going into moult, let them be put up to fatten for a short time, if necessary, and then be killed or sold. If chickens have been reared at home, the best of the pullets can be selected to fill up the vacancies in the laying stock. If it be necessary to purchase pullets, the sooner it is done the better, as when the season is further advanced it is not easy to make sure of what the age the pullets is. March and April pullets are best for winter laying, and at this season well-bred chickens which are not up to the exhibition standard can generally be purchased at moderate prices.

A CORRESPONDENT of an American contemporary writing from Petaluma, California, gives an account of poultry keeping in the Far West. The long dry summers, and the consequent deficiency of grass, are somewhat against the rearing of chickens except in the early months of the year; but the writer has found that by giving an abundant supply of green stuff from the lawn and garden he has been able to overcome this difficulty. Within the range of vision from the writer's farm about a dozen other farms can be seen at which from four hundred to eight hundred laying hens are kept, and flocks of smaller numbers are almost innumerable. Not much attention has hitherto been paid to the raising of pure-bred poultry, but now some advance is being made. Breeders are adding fine birds to their stock, incubators are being introduced, and there are marked indications of "a new era of poultry-raising on that coast." The writer has devoted his attention to Plymouth Rocks and Brown Leghorns, and has raised this season 1800 chickens. Next year he hopes, or rather "calculates" to raise more thousands than his hundreds number this season. We trust that Mr. Byce's calculations will be realised, and as he promises further particulars we shall await them with much interest.

THE same number of the *Poultry Bulletin*, which contains the particulars we have quoted above, also contains a letter headed "Farmers as Poultry-keepers." At the present juncture the views of an American writer upon this subject may be of interest; we therefore quote the following passages—"A farmer should keep standard breeds of fowls, because such poultry is more profitable than mongrel stock, and if hens are kept at all one might just as well keep the best as the worst; but I would advise a practical farmer to keep out of what is known as the business of breeding

fancy fowls." "That it will pay an ordinary farmer, so far as money is concerned, to breed for fancy points I dispute most emphatically. It will pay him indirectly, but not in cash. Such poultry-breeding is for the mechanic in village or suburb, who attends shows and knows all the ins and outs of 'strains' and 'breeds' and premium birds. Our leading fanciers are not farmers; thousands of farmers take a keen interest in fine poultry, but are not known outside of their towns as poultry breeders." The writer proceeds to recommend the wives and children of farmers to go into poultry breeding, and become fanciers on the ground that it will do them good in a hundred ways and may bring in a few dollars of pocket money, and concludes—"But to the practical granger who cares nothing for horses but for their ability to pull, nothing for cows but for the milk they give, and nothing for poultry except for its market value—if he asked me if I thought it would pay him to keep standard fowls as leading fanciers do, I should reply emphatically, 'No.'"

THE *Live Stock Journal* of last week contains an interesting account of poultry farming as carried on by a Mr. Wells of Barnston, Dunmow, Essex. This establishment is not, however, exclusively or even mainly a poultry farm. It is an ordinary farm of five hundred acres, of which about 150 are under grass, and upon which on the average some six thousand chickens are kept. These are intended for killing, and some twelve to fifteen dozen are sent off daily to the London market. During autumn and winter the chickens necessary to keep up this supply are raised at home by means of incubators and artificial mothers. Mr. Wells prefers a cross between Hamburgs and Dorkings, because the fowls are vigorous and plump. In spring and summer the chickens are purchased from the farmers and cottagers of the district at from 8d. to 10d. apiece. The chickens are kept until ready for fattening in moveable poultry houses, such as old showman's vans, &c. There are twenty of these, and each holds three hundred chickens. They are frequently moved about from place to place, and it is found that the presence of the chickens on the grass does not in any way interfere with the grazing of the cattle, while their manure increases the quantity and improves the quality of the pasture. When ready for fattening the chickens are taken into the feeding shed, where there are tiers on tiers of small cages, each capable of holding ten or a dozen fowls. As the chickens are in good condition before being put up to fatten, a few days only are necessary to finish them for market. Barley, maize, barleymeal, and toppings constitute the staple feeding in the fields, some horseflesh boiled, Mangold, &c., being given twice a week. Meal of one sort or another mixed with milk is used in the feeding shed. The plucking and dressing is done by piece work at a cost of 9d. per dozen, and against this there is to be set the value of the feathers, which is about 6d. per dozen birds. The carriage to London costs 9d. per dozen. The capital employed in the business is some £500, and the monthly balance sheet shows a profit of from 25 to 30 per cent. on this sum. The concern has not as yet been a year in operation, but the results so far are of a satisfactory character.

OVERFEEDING.

THERE are few evils fowls suffer more from, or are more subjected to, than this. It is a matter not exclusively confined to the inexperienced. I think the most practical often commit the mistake, and it happens oftenest with those who are preparing fowls for particular purposes, such as showing, laying, or killing. When such objects are in view the general impression seems to be that they are soonest and best secured by continual feeding. In poultry books and poultry papers no warning is more often given than to avoid too frequently feeding fowls generally and young chickens in particular. But how long most of us are in putting this sound advice into practice! We adhere to the idea that the oftener we can induce them to eat the sooner will they gain a healthy maturity, and at first we feel confident that we are succeeding, but there soon comes a time that proves us mistaken.

Very young chicks may require to be supplied with food four, five, or six times a day; but at this season of the year there is no necessity for such frequent feeding, as all young stocks are now advanced in growth, and feeding must be regulated accordingly. We have offered food four times a day to birds four months old, and at times some of them would not come near it, while others would look at it as if it was bad, until at last they seemed to have no appetite for food at any time. It is when they are like this that they are most provoking, and it is then that readers trouble Editors with doleful tales of their fowls not taking food and

moping about from indigestion although this is hardly ever admitted.

The advice given is generally "to feed less," and in many mysterious cases this has a most wonderful effect. I have observed it with much gratification amongst my own birds and can speak from experience. I readily own to occasional over-feeding, and also to the efficacy of the simple remedy. Sometimes when I have had late-hatched chicks which I wanted to get up for certain occasions, I have tried frequent feeding on every variety of food, but in no single instance had this the desired effect, and the improvement which took place in their flesh, feather, and carriage when the supply of food was reduced was surprising.

All other things being right a fair supply of food will bring all kinds of fowls on fast enough for any purpose, and by a fair supply I may say I mean giving them as much as they will eat twice daily and no oftener. If fowls are fed say at 7 A.M., and again at 4 or 5 P.M., there will none of them wait to think which bit they should select for the next, but all will be taken with a relish, and it is then condition is gained. To observe them taking one meal under this regulation will please the young fancier far more than when only a very little of his frequently given dainties are taken and the remainder left to be devoured by pests of the poultry yard, or, worse still, to be mixed up with fresh food or taken later on in a sour state.

Apart from cleanliness, if I wanted to keep fowls, no matter of what age, in the best of health, I would begin and end by always keeping them on the hungry side, and if a distaste for food became apparent a meal now and again would be withheld altogether. If this is done at supper time an extra handful of meal will be wanted next morning, and care must be taken that it is not overdone. Of course these remarks do not apply to fowls being crammed for the pot, but only to such as are being kept for any other purpose. Some of the quick-fattening processes are apt to end in loss of appetite, and then, even in the case of birds that are being fattened, skipping over a meal now and again gives more gain than loss.—J. MUIR.

OUR LETTER BOX.

Feeding Times for Fowls (Alice).—A good meal in the morning, a very moderate one at midday, and another good one two hours before dark will be sufficient. The appetite of the birds must be your guide as to quantity.

Earth Floor for Stables—Oilcake for Cow (S. G.).—Ordinary clay soils will do well for placing at the bottom of stables and boxes if made perfectly dry and then broken down fine and passed through a half-inch ash screen. There are, however, some very tenacious and putty-like clays which will require about 20 per cent. of sand or ashes mixed with them to be effectually absorbent. If a cow at grass is allowed 4 lbs. of oilcake per day as supplementary food, it should be given at twice at the time of milking.

Hydrophobia (Leal).—It is utterly impossible for us, however willing we may be to do so, to advise you satisfactorily on the case submitted. There may be circumstances connected with it of considerable importance that no one can fully appreciate from a briefly written description of the event. Your only proper and safe course is to consult a medical man on the points you have submitted to us.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881. July. August.		Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sun.	31	29.578	59.6	59.9	S.E.	62.8	67.5	57.3	75.5	51.4	0.167	
Mon.	1	29.800	62.2	55.3	N.W.	61.7	72.5	47.4	100.0	44.3	0.155	
Tues.	2	30.092	61.6	55.6	N.	61.6	71.7	53.8	114.6	50.8	—	
Wed.	3	30.244	61.7	58.9	W.	61.6	71.5	50.8	106.4	45.8	—	
Thurs.	4	30.330	64.6	61.3	W.	61.9	80.4	57.2	126.3	53.2	—	
Friday	5	30.094	70.6	64.0	S.E.	63.3	84.6	51.4	124.5	45.5	—	
Satur.	6	30.088	64.8	57.9	W.	64.1	75.5	54.3	124.0	50.4	—	
Means.		30.032	63.6	58.9		62.4	74.8	53.2	110.2	49.2	0.322	

REMARKS.

31st.—Very wet morning; slight rain nearly all day and high wind; heavy shower at 7.15 P.M.

1st.—Hazy but fine until 5.45 P.M.; rain until 7 P.M.

2nd.—Fine, calm, hazy.

3rd.—Dull cool morning; slight shower at 9.15 A.M.; fair rest of the day.

4th.—Very warm, fine, and bright.

5th.—Hazy at first; very warm fine day; solar halo at 6.30 P.M.

6th.—Cooler; bright and fine throughout.

Sunday was wild and wet, and Friday was very warm; but on the whole the temperature was near the average, and calls for no special remark.—G. J. SYMONS.



18th	TH	Cheadle Show (two days).
19th	F	
20th	S	10TH SUNDAY AFTER TRINITY.
21st	SUN	
22nd	M	[11 A.M. Royal Horticultural Society, Fruit and Floral Committees at Manchester International Horticultural Exhibition (four days). [Barton-on-Trent Show.]
23rd	TU	
24th	W	

PEACH-GROWING FOR AMATEURS.

It is to be feared that outdoor Peach-growing has received a great check during the last two or three seasons, and that many have given it up as a hopeless task. It is true that fruit has been comparatively scarce, and that many trees have actually succumbed to the inclemency of the climate. Let me distinctly state, however, that the evil has not been caused by the severity of our winters, but summer frosts, summer deluges, and the want of summer sun have been the great destroyers, more especially the weather of what should have been the summer of 1879. That the Peach is sufficiently hardy for our winters is proved by the fact that on a wall containing some three dozen trees not a single branch was injured during the last winter, although many a monarch of the forest which has stood the greater part of a century has been unable to obey the summons of spring. Lombardy Poplars especially, which have served as landmarks for ages, may be seen all over this part of the country as bare as in midwinter; and even the common tree Box, which I have never thought was a tender plant, has in one part of our grounds, situate near the lake called "Half-mile Pond," lost all its lower growth in a line varying from 2 to 4 feet from the ground. There are, perhaps, fifty or sixty large plants in this situation, and all have their lower branches killed, while the upper part is unscathed.

That there is much interest attending outdoor fruit culture no one will deny, and amongst outdoor fruits none will bring so much credit as a well-clothed and well-cropped Peach wall. But, unfortunately, though we have to a great extent disposed of toy fruit trees which were very pretty but failed to fill the fruit-rooms, and even banished the fan-trained and most of the other unscientific forms of Pear tree, our grandfathers' notions that the Peach tree must be five years in making its backbones, and yet another five years in covering its allotted space, still linger. The consequence is, that whenever we experience an untoward season or two, professional gardeners talk of discontinuing outdoor Peach-growing, and amateurs are afraid to commence; and as the latter generally cannot afford the time to look after Peach houses, even if they can afford the money to build them, Peaches remain the luxury of the few. That this need not be so I will endeavour to show.

First of all throw away the old form of tree which figures so beautifully on paper but always fails to do so on a wall, the reason for which is not far to seek, its principle being wrong

according to all our notions of physiology. In the standard works on gardening we are first lectured very properly on maintaining a balance between the growths, and it is shown clearly that elevating a branch will produce comparative vigour, while lowering it will check luxuriance; but then, strange to say, we are recommended to spend five years in merely producing the outlines of a form which is the very opposite of all this teaching. You cannot have fan-training without having some branches nearly horizontal and others which are nearly perpendicular. The horizontal ones, moreover, are of necessity at the lower part of the tree, where vigour is wanted if anywhere. As this kind of tree cannot be produced by fair training recourse must be had to severe pruning, and even this in the end will fail to regulate the branches, which will ever burst out here and there violently, like a boy with a bad temper who has had all cuts and no coaxes. Correction is necessary for both trees and boys, but the necessity for applying it in a severe form generally arises from some neglect of "nipping in the bud."

I have said that fan-training is wrong in principle, it is also a difficult mode of training to teach. You cannot teach it to a labourer be he ever so sharp under one whole season's practice, and there are seven-eighths of the men brought up in gardens who never could be trusted to attend to fan-trained Peach trees had they ever so much tuition on the subject. It is not so with any other fruit, and it need not be so with the Peach if we follow either a more natural or a more scientific method. Some of the forms of cordon are more scientific and are fairly successful, but the method I have to recommend is the more natural. The outline is like that of the horizontal-trained Pear, excepting that the branches instead of being horizontal have an elevation of about 30°. We begin in November with maiden plants—i.e., plants which have made one simple growth from the bud about a yard long. There should be no difficulty in finding plants with well-ripened growth after such a season as the present one, and remember that ripened wood on a young clean stock is of far more consequence than strong growth. You must expect to pay for having them selected. Supposing ordinary maiden plants to be 1s. 6d., selected ones are worth 2s. 6d., and if you order them now any good nurseryman will be pleased to select them for you at once, and fasten your name on them ready for removal at the first suitable time, whereas if the order is deferred till the busy season when everybody wants to be first, little customers especially can scarcely expect to be so well served.

The plants as soon as they arrive are to be planted upright, and 4 feet apart against a south wall. The knife is not to be used at all the first winter unless it is to cut off a small side shoot or two which may have formed; but this is not really necessary, and I generally leave them on and tack them to the wall. When the plants have made growths 2 or 3 inches long in spring, which they will do in abundance, some of these must be selected along each side of the stem at intervals of about 9 or 10 inches, which must be carefully looked after and trained outwards with about the same slope as the roof of a slated house; the other shoots where crowded may be carefully thinned by taking some of them off close to the stem, but leaving as many as there is room for to clothe the stem and assist circulation, merely stopping them to four or five leaves. The second year will see the wall nearly covered and bearing a few fruits; while the third, should the season be

favourable, will bring a full crop, and every other tree will require removal. I have a good length of wall at present in this happy condition, and I must confess that I am not a little proud of it.

We have been gathering Early Beatriee since the end of July; Early Louise in quantity, and better in quality, about a week later. Hale's Early and Early Rivers have a few fruits sufficiently ripe to gather, while Early Ascot Peach and Lord Napier Nectarine promise to be not far behind. The bearing space of our wall is about 9 feet high, each tree has a lateral space of 4 feet, and bears from thirty to fifty fine fruits. The only protection used in spring was a board coping a foot wide which has remained on, and a bird net of an inch mesh, which was removed at the end of April. We had several rather sharp frosts at the end of March; on one occasion the thermometer at 4 feet from the ground went down to $22\frac{1}{2}^{\circ}$, and on another to 23° .—WM. TAYLOR.

CLIMBING PLANTS.

OFTEN have I written about hardy climbers, and yet the subject is far from being exhausted, for they become more beautiful every year, fresh charms becoming developed with advancing age—charms that would probably remain unnoticed upon solitary specimens, but which are rendered prominent by association with others. Early in the year a pair of Clematis montana were very beautiful. Planted originally to cover the massive stone piers of a gateway, they have climbed over the tops of the piers along a wall on each hand, one running onwards to the top of a gabled roof along the edge of which a fringe of its long branches hang down for several feet, no pruning knife ever being suffered to touch them, and nothing can be more striking than this huge old plant when laden with its pure white flowers. The pendant branches half screen and mingle charmingly with the growth of a Bignonia radicans, a Ceanothus azureus, and a Periploca græca. Later on the Bignonia will give us large clusters of its brilliant flowers, some nestling among the Clematis, and others standing out boldly from the mass of foliage in striking contrast to the soft clustering spikes of the pale blue Ceanothus. The Periploca has been in bloom several weeks and its flowers will soon be gone, but its foliage is so ornamental, clothing the wall with such dense masses of green, that we regret it is deciduous. The other Clematis has climbed up the end of a building full 30 feet high, twining about among the branches of a Virginian Creeper, among the foliage of which its white blossom is very pretty, and not unfrequently proves somewhat puzzling when seen for the first time. Near the Virginian Creeper a Honeysuckle (Lonicera brachypoda) has hitherto been highly ornamental, but I am sorry to say the severe weather of last winter killed many of its branches. Several others have suffered, and among them I am sorry to have to include the fine old specimen of L. flexuosa growing upon my house, which has lost all its upper branches.

We have now had three consecutive winters of unusual severity, and it is curious to see that the effects upon some of the old climbers is very similar to that of repeated attacks of illness upon old people—debility, disease, and sometimes death. For the first time in my experience Berberidopsis corallina lost most of its foliage last winter, the only branches not denuded being close to the wall or sheltered by the dense sturdy growth of a Cotoneaster. I am glad to say new foliage has come, but neither is it so stout in texture nor so large as usual. I may note that the two specimens growing here of this fine climber have hitherto been remarkable for robust health and extraordinary vigour. Myrtles too were cut down, and an Aristolochia Sipho lost much of its growth.

Ampelopsis Veitchii grows in our favour. No building appears too high for it. Once established it requires no further care but to keep it within bounds, which is not often required, for it makes its way behind the branches of other climbers and mingles its growth with theirs most charmingly. One huge plant of it has covered two storeys of a lofty building, and is rapidly advancing upwards over a third. It is spreading laterally among the branches of a Climbing Devonensis Rose on one side, and a Maréchal Niel on the other. At its base are several other climbers, the most conspicuous just now being Clematis Jackmanii laden with its rich violet purple flowers made more than usually attractive by their setting of the Ampelopsis foliage. The Ampelopsis bore seed abundantly last year, but very little of it proved fertile, only about a dozen seedlings having been raised from a considerable quantity of seed.

Not far from the Ampelopsis is another very attractive group

of climbers. The loftiest is a Solfaterre Rose, one of my especial old favourites. All its lower branches are covered by a white Jessamine, which, too, is rapidly mounting upwards past one of the windows of a drawing-room to those of a boudoir upon the next floor, for which purpose it was planted. Up among the Rose branches a Prince of Wales Clematis has climbed, and its deep purple flowers are now in full beauty, and the last scarlet flowers of Lonicera sempervirens are falling among the branches of the Jessamine.—EDWARD LUCKHURST.

HOW TO INDUCE EARLY FERTILITY IN SEEDLING FRUITS.

ONE of the great drawbacks attending the raising of seedling fruits such as Apples, Pears, and Plums, is the long period that must elapse before they produce fruit and can be proved. A seedling Apple or Plum will rarely bear in less than from eight to ten years, and a Pear in less than from sixteen to twenty years. A Cherry, on the other hand, will sometimes bear fruit in from four to six years. Fertility may be frequently hastened, however, by tying or ringing the bark of a branch. This is done by removing a thin ring of the bark, or by tying the branch tightly round with wire, by which means the sap is checked in its descent, the branch becomes swollen above the tie or ring, and fruit buds are formed. I have recently had a noticeable instance of the success attending this plan, which I tried on an unfruited seedling Apple, a branch of which I tied round last year with wire, and I find that not only is this the single branch which has fruited, but the only one on the tree which blossomed.

Another mode of obtaining the same end is to tie down the branches where practicable. Planting in a warm or shallowish soil, or removal to such a position from a deeper or richer soil, will also usually tend to early fertility. I also recommend that buds be carefully taken from the yearling fruit and inserted in a stock which induces precocity in fruiting. If an Apple, on the Doucin or French Paradise, a Pear on the Quince or Whitethorn, or a Plum on the Myrobalan or Sloe. By adopting one or all of these means the ordinary fruiting period may be advanced, and raisers may hope to live to taste the fruits of their labour.—T. LAXTON, Bedford.

PREPARING FOR WINTER.

(Continued from page 75.)

TOMATOES.

HAVING written previously and at considerable length upon this subject I have some diffidence in recurring to it. The importance of the subject and the knowledge that there are many fresh subscribers to the *Journal of Horticulture* must be my excuse. Given a suitable house, or a suitable position in a house, and there is nothing to hinder the merest tyro from growing Tomatoes in winter. When well grown they are decidedly ornamental, and there are but few establishments, even supposing the proprietors have no special liking for them, where they will fail to put the fruit to a good use. Those who are great admirers of the Tomato will find house-grown fruit much superior in quality to any they may have ripened in the open during the majority of our seasons. It is rather amusing to note the great divergence of tastes with regard to Tomatoes, some being inordinately fond of the fruit, while others have a positive aversion to them. Some on first tasting do so with a firm conviction they will not like them, and this was the case with a farmer whom I recently tried to convert. He seriously affirms he could taste the Tomatoes I gave him for a fortnight, and makes a wry face at those growing whenever he pays us a visit. The relish for them is undoubtedly an acquired one, and for this reason more than one attempt to eat them should be made. If considered insipid when sliced up and eaten with vinegar, oil, and pepper, they may yet be found palatable when baked. According to some authorities Tomatoes possess medicinal properties, and are especially recommended for those afflicted with a disordered liver. This is good news to me and probably many others, as I have no objection to such agreeable remedies.

After this brief attempt at the conversion of some of our readers I will now offer a few remarks on the winter culture of the Tomato. The plants will not succeed in a greenhouse temperature, but require to be grown in a house under the same conditions as ordinary stove plants. Bottom heat is not absolutely necessary, but if properly attended to they will succeed better with it. I have grown profitable crops in 12-inch pots, these being thinly disposed on a staging over hot-water pipes and among small decorative plants, growing in a low span-roof house. The Tomatoes were trained up the wires previously used for the Melons. In a high-fronted house the Tomatoes might be grown in the same

size pots and supported by strong upright stakes. Where there are houses specially arranged for Melon-growing—that is to say, with enclosed bottom heat and good top heat, the Tomatoes may occupy the positions previously filled by the Melons. In this case all that will be necessary will be to mix a little good decayed manure with the loam in which the Melons previously grew. In whatever fashion the plants are to be grown no time should be lost in preparing them for the start. If sturdy and tolerably well seasoned young shoots can be had, these may be made into cuttings and struck, either by placing them thinly round the sides of 6-inch pots or singly in 3-inch pots. A light sandy soil should be employed, and the pots of cuttings be placed in heat and shaded; but if they be kept very close and damp they will fail. The cuttings obtained in the open will this season be much too succulent to strike well, and, where available, cuttings should be taken from house-grown plants. Seedlings I find succeed equally as well as plants from cuttings, but they are rather more trouble and more liable to become drawn and weakly. This is to be guarded against in either case. The seed will germinate freely with or without heat, and should be sown thinly in light soil. Cover with glass and shade till the seed has germinated, then remove both shading and glass, and elevate them to near glass in a frame or on a shelf in house. When the rough leaves are formed pot off the plants singly, burying the stems up to the seed leaves in either 5 or 6-inch pots, and keep them rather close till established. Afterwards give abundance of air on all favourable occasions; and before the plants become much rootbound shift into the fruiting pots, or plant in the fruiting quarters. The treatment of the plants in cutting pots to be the same as advised for the seedlings. The soil recommended consists of two parts of turfy loam to one of sifted decomposed manure. It should be broken somewhat finely for the first potting, but for the final potting it ought to be employed in a much rougher state. Failing turfy loam add a little bone manure and a few broken bricks, which will serve to keep the whole porous, and the former is, besides, a good fertiliser.

In all cases it is recommended that the plants be grown to a single stem, all side shoots being kept closely rubbed out. This strengthening the plant results in the formation of much larger bunches of bloom than would otherwise be the case; and what is of still greater importance is a good preventive of crowding, than which nothing is more injurious. When growing among other plants the Tomatoes should be disposed at least 2 feet apart, and where the undergrowth has not to be studied they may be placed about 18 inches apart. The fruits do not always set well in a moist heat, and for this reason my aim has been to have the plants well established in the pots with the first strong bunch of fruit set prior to transferring to the winter quarters about the middle of September. If any difficulty is experienced in setting a crop, maintain for a time a warmer temperature and give air freely. In this manner a drier atmosphere will result, and this will admit of the pollen being distributed with a camel's-hair brush. It is not advisable to syringe the plants overhead at any time, at the same time a moist atmosphere appears to favour the growth. A temperature ranging from 60° by night or 70° by day will suit them well, but no harm will result at occasional lower temperatures.

An occasional top-dressing of equal parts turfy loam and manure will benefit them, and for this reason it is a good plan to only about three parts fill the pots when finally potting. The first top-dressing may be given the plants or pots when the fruits are swelling. The soil for top-dressing should be warmed, and the soil in the pots be watered if required prior to top-dressing. When watering do not be misled by the fact of the new soil being in a moist state, but carefully examine the old soil, as dryness at the roots induces premature ripening. As they are gross feeders, liquid manure ought often to be administered. Stop the leading stems one joint beyond the third developed bunch of bloom. In the case of plants in pots three heavy bunches of fruit will be a sufficient crop; and as a rule the plants, when they have perfected these, may be thrown away, it being more profitable to raise more plants in September and grow for succession. Where the plants have a good bed of soil to root in, they, after the stopping beyond the third bunch, may be allowed to form a fresh leader, and one of the many shoots that are constantly springing up from near the base of the plant may be laid in. The old foliage need not be retained after the fruits are ripe. If the haulm be occasionally thinned and fresh growth laid in, as well as giving top-dressings and carefully watering at the roots, plants may be maintained in full bearing for years. In this case a few widely disposed plants only should be grown. I prefer younger and more vigorous plants.

Taken on the whole I consider Earley's Defiance the most profitable variety to grow, and I find others are of the same opinion.

Conqueror is equally as heavy-cropping, but the colour, a rich glossy vermilion, is against it. Both have corrugated fruit, and are not so liable to crack as the round-fruited kinds. Fruit that has a tendency to crack should be cut when changing colour, and be ripened on a dry shelf in the house where grown, or in other warm structures.—W. IGGULDEN.

PLANTING HOLLY.

PERHAPS no time in the whole year is more suitable for planting or removing Hollies than the month of August. It is even more suitable than the month of May, which is considered one of the best of the year in which to carry out the operation. When large specimens have to be replanted there can be no doubt that the present month is preferable. Hollies have completed their first growth, and can be removed with success and with much less labour than if lifted during May. When lifting is practised during this month, unless the weather is very hot and dry, the specimens require but little attention afterwards in the way of watering. If the soil be dry when carrying out the operation a good soaking of water should be given, and again when placed in their positions. This in the majority of cases will prove sufficient, but in May much labour is often occasioned if the weather proves hot and dry. After the first growth is completed the roots are active and soon take to the soil after removal, and become partially established before winter. Lifting after the first growth often prevents a second being made, and this is rather an advantage than otherwise. Second growth in Hollies is not very desirable at any time in the northern counties, as seldom in the most favourable seasons is the growth thoroughly matured to withstand the severity of our winters. In many instances the growths when made late not only lose all their foliage, but are frequently killed back to the wood made early in the season. I do not wish to convey the idea that Hollies cannot be lifted with marked success during any other month of the year than August, as I have long since concluded that the majority of evergreens can safely be removed any time during the year providing they are lifted and replanted immediately. The case is very different if the plants have to be sent from a distance. I would much rather remove evergreens from the middle of July onwards to the end of September than during the winter months, when the roots are inactive and the plants have no chance of taking to the soil before being subject to severe weather. I am perfectly aware that more shrubs of different kinds are removed and replanted from the end of October through the winter than at any other time, and from many reasons that appears the most convenient time. This undoubtedly has become the practice, and shrubs in consequence are often planted when the ground is in a very unsatisfactory state. Death in many cases is the result, which is too frequently attributed to any but the right cause. I have from time to time been engaged in removing evergreens when most gardeners and cultivators would not have considered the time judicious. The results were always satisfactory, and I think the lifting of large Hollies and Rhododendrons cannot be performed at a better time than the present, nor with a greater degree of certainty and success.

A short time ago I had the pleasure of seeing some noble specimens of *Ilex Hodginsii*, and was much struck with the rapid growth the plants had made. Only a very few years ago they were comparatively small, planted as single specimens on grass, and pruned-in to keep them in shape as they grew. They are now noble plants, varying from 10 to 12 feet high, and perfect pyramids. The lower branches rest upon the turf, and are as far through at the base as the plants are high. They have grown very thick, so that it is almost impossible to see through them, and their fine dark foliage is beautiful. This I consider the finest dark-green-leaved Holly that can be grown, and hope in future it will be planted in greater numbers. It is very hardy, for last winter was sufficient to test it, and although cut a little in very exposed places, the plants now look none the worse.—W. BARDNEY.

CABBAGE LETTUCE.

I WISH to thank Mr. Iggulden for his reply to my inquiry on this subject. I did not question what he had written, as I have always found his writings on kitchen garden subjects reliable. Cos varieties are not appreciated here, and in consequence good Cabbage kinds have to be grown. Hardy Hammersmith I have discarded, as it so quickly runs to seed with me early in the season. I have grown *Commodore Nutt*, or what was sold me for that variety, first in 1880, and again this year. The seed of it and *Tom Thumb* were sown together on a warm border early both seasons side by side, in order to test the superior quality of the

Commodore over Tom Thumb, but found no difference. The seed of the two had evidently come out of the same bag, and upon making inquiries I was informed the seed had been obtained direct. I will, however, obtain seed from those who sent it out.
—A GROWER OF SALADS.

ROSES IN SMOKY DISTRICTS.

To achieve success in growing Roses in the neighbourhood of smoky districts, it is necessary to select and plant only those varieties likely to flourish and give satisfaction, though I do not say much success as exhibitors can be attained by growing Roses in such districts, however judicious the selection. Three comparatively new Roses I shall refer to, one of which was only sent out last year, appears much hardier and flourishes much better than many other older kinds I am acquainted with. Sultan of Zanzibar, a fine dark Rose, somewhat in the way of Reynolds Hole, endured the severe weather of last winter well on a standard, and grows vigorously in this smoky climate. Duke of Edinburgh, a superb Rose, rich velvety crimson, is also very hardy and has endured the past winters bravely on the standard, but really flourishes the best in this neighbourhood as a dwarf on the seedling Briar or on its own roots. Mrs. Jowitt, a new Rose of last year, a strong and vigorous grower and of hardy constitution, will, I believe, prove a valuable Rose for smoky districts. I obtained plants early last year which were remarkably strong. They were planted at once, and stood the severe weather unmulched all winter, and not one portion of the wood was turned black. This season they have grown more vigorously than any other Rose I have. It has with me every tendency to be a late-blooming variety, and if it continues to display that characteristic will be very valuable. My plants are on the Manetti. It may be premature to decide upon all the good qualities of this Rose, but we might naturally conclude that it should be good when it has such parentage as Mdle. Marie Rady and Due de Rohan.

Two light Roses for smoky places which prove invaluable are La France and Madame Gabriel Luizet, the former being the most useful light Rose in cultivation, and should be grown as a dwarf—it is soon killed when grown as a standard—and well mulched during winter. It grows fairly well on any stock, but better and safer on its own roots. If the roots are killed during winter when on its own roots, it will with certainty spring freely from the base and flower continuously and profusely. The other variety is very hardy and grows vigorously with me, and blooms well.—LANCASTRIAN.

A POTATO GROWER'S DILEMMA.

FUNDAMENTAL principles, whether in growing the Potato or in making or mixing paint, cannot be set aside with impunity, and one of the most important points in the successful cultivation of the Potato is, or ought to be, a sufficiency of space between the plants to allow the air and sunshine to have full play around each individual plant. Without the beneficial effects of these success in the cultivation of flowers, fruits, and vegetables need not be looked for. It is fair to infer that "F. S." (page 103) has previously tried the Magnum Bonum Potato, and it has pleased him; he now plants a whole square of it in his walled-in garden, filled with tall fruit trees, and the soil a literal hotbed of manure. These rows are only 2 feet apart under conditions conducive to "drawing," whereas it has been clearly demonstrated that 30 inches between the lines is little enough for such varieties as the Old Ashleaf, Myatt's, and Rivers' Prolific, which are not half so much given to the production of haulm as Magnum Bonum. The last-named cannot be grown in the open fields in this humid district at a less distance than 3 feet between the lines and 2 feet between the sets, and they should have more room in "F. S.'s" walled-in garden.

The preparation of the sets in a great measure has apparently been neglected, for which there is not much excuse, as they might have been spread in a light and cool place, and all the superfluous and weakly eyes removed; this would have effectually obviated the growth of six or seven stalks to one plant. Two years ago I saw Magnum Bonum tried in a garden similar to that of "F. S." The sets had been properly prepared and the land had also. They were planted 3 feet apart between the lines, and 2 feet between the sets; and even that was found to be too little room for the monstrous growth of haulm made in the dull summer of 1879. When lifted they yielded nevertheless a fair crop, but of very bad quality, although the gardener's employer liked them, and said they were exceedingly good. If they had been tried again they would have been planted at 4 feet between the lines, and 30 inches between the sets. In the present case it is very doubtful whether

with any pinching, pruning, or thinning the haulm would be of any avail. The only thing that appears likely to be of any real value is fine weather and letting the crop stand as long as possible for the maturation of such tubers as form. Last year the writer saw a field of Champions in much the same condition, but not quite so bad: and at the end of August there was not a tuber the size of a Bantam's egg, yet when ploughed out in October the crop averaged eight tons an acre. Magnum Bonum on the same farm did not succeed, and to the best of my knowledge is not grown this year at all.

However anxious "F. S." may be to grow Magnum Bonum, it is doubtful whether he will ever succeed in growing it well under the conditions at his command; to say the least of it, it is not a garden Potato, at least in this northern district.—PETER FERGUSON, *Mere Knolls, Monk Wearmouth.*

CARNATION AND PICOTEE SHOW.—AUGUST 9TH.

ON account of the lateness of the fixture (24th August) for the National Carnation (Northern Section's) Show, the principal growers decided to hold an Exhibition on the 9th inst. R. Gorton, Esq., kindly acted as Secretary, and under his direction one of the finest shows ever held in the north took place in the Town Hall, Manchester. The flowers were all good, and it is unnecessary to particularise individuals. The numerous good seedlings were noteworthy. The premier Carnation prize was awarded to a seedling rose flake very deep in colour, a flower of grand form and substance, exhibited by R. Gorton, Esq. The premier Picotee was a seedling, heavy purple, named Muriel, a fine flower with bright purple edge. Generally the named flowers were past their best, though the seedlings were superb, and for quality never before excelled. The following is a list of the awards.

Class A, for twelve Carnations, dissimilar, first, Mr. B. Simonite, Rough Bank, Sheffield, with Robert Lord, S.B.; James Douglas, P.F.; Sarah Payne, P.P.B.; Seedling, R.F.; J. B. Sharp, P.F.; Crimson Banner, C.B.; Seedling, S.F.; Admiral Curzon, S.B.; John Simonite, C.B.; Seedling, R.F.; and Jas. Taylor, P.P.B. Equal first, Mr. R. Gorton, Eccles, Manchester, with Tim Bobbin, R.F.; Seedling, P.P.B.; Tim Whittaker, S.B.; Rob Roy, R.F. (premier Carnation); Jas. Cheetam, S.P.; Seedling, R.F.; William Skirving, C.B.; Seedling, P.P.B.; Seedling, C.B.; Admiral Curzon, S.B.; Clipper, S.F.; and Robin Hood, R.F. Second, Mr. J. Booth, Failsforth, Manchester, with Sportsman, S.P.; Jas. Douglas, P.F.; William Laing, R.F.; Clipper, S.F.; Eccentric Jack, C.B.; John Keet, R.F.; Earl of Wilton, P.F.; Seedling, C.B.; Admiral Curzon, S.B.; Falconbridge, P.P.B.; Annihilator, S.P.; and Garibaldi, S.B. Third, Mr. T. Bower, Bradford, York. Fourth, Mr. E. Booth, Moberley, Cheshire. Fifth, Mr. Jno. Beswick, Middleton, Manchester; and sixth, Mr. Geo. Rudd, Undercliffe, Bradford.

Class B, for twelve Picotees, dissimilar, first, Mr. B. Simonite with Mrs. Niven, P.P.; Mrs. Gorton, S.R.; Fanny Helen, H.R.; Mary, L.P.; Miss Wood, L.R.; Morna, H.R.; Violet Douglas, L.R.; J. B. Bryant, H.R.; Seedling, H.R.; Tinnie, H.P.; and Seedling, H.R. Second, Mr. R. Gorton, with John Smith, H.R.; Mrs. Summers, H.P.; Edith Dombrain, H.R.; Zerlina, H.P.; Seedling, L.R.; Ann Lord, L.P.; Mary, L.P.; Miss Horner, H.R.; Alliance, H.P.; Seedling, H.R.; Fanny Hellen, H.R.; and Rosy Queen, H.S. Third, Mr. J. Booth; fourth, Mr. Geo. Rudd; fifth, Mr. E. Booth; and sixth, Mr. John Beswick.

Class C, for twelve Carnations, not less than nine dissimilar varieties, first, Mr. Wm. Hewitt, Chesterfield, with Falconbridge, P.P.B.; Admiral Curzon, S.B.; James Merryweather, R.F.; Seedling, S.B.; Seedling, S.B.; Jno. Ball, S.P.; Master Fred, C.B.; Seedling, S.F.; Albion's Pride, C.B.; Seedling, S.B.; E. S. Dodwell, C.B.; and Seedling, S.F. Second, Mr. John Fletcher with Seedling, S.F.; John Keet, R.F.; Seedling, P.P.; Rifleman, C.B.; Unexpected, P.P.B.; Seedling, S.B.; Seedling, S.F.; Seedling, R.F.; Robert Lord, S.B.; Seedling, P.F.; and Lord Napier, S.B. These were the only exhibitors in the class.

Class D, for twelve Picotees, nine dissimilar varieties, first, Mr. Thos. Bower with Her Majesty, L.P.; Juliana, H.S.; Mrs. Dodwell, H.R.; Edith Dombrain, H.R.; John Smith, H.R.; Tinnie, H.P.; Mrs. Small, H.R.; Master Norman, H.R.; Zerlina, H.R.; Wm. Summers, R.; Mary, L.P.; and John Smith, H.R. Second, Mr. Jno. Fletcher with Mrs. Dodwell, H.R.; Ann Lord, L.P.; Royal Visit, H.R.; Her Majesty, L.P.; Mrs. Small, H.R.; Seedling, H.P.P.; J. B. Bryant, H.R.; Seedling, M.P.P.; Edith Dombrain, H.R.; and Minnie, L.P. Third, Mr. W. M. Hewitt with Muriel, H.P. (premier); Miss Lee, H.R.; J. B. Bryant, H.R.; Mrs. Niven, H.P.; Zerlina, H.P.; Ann Lord, L.P.; Mary, L.P.; Minnie, L.P.; and Master Norman, H.R.

Class E, six Carnations, dissimilar, first, Mr. E. Schofield, Jubbergate, Wortley, near Leeds, with Mars, S.B.; James Merryweather, R.F.; Sportsman, S.F.; Jenny Lind, C.B.; Admiral Curzon, S.B.; and Jno. Keet, R.F. Second, Mr. John Whittaker, Royton, Rochdale.

Class F, six Picotees, dissimilar, first, Mr. E. Schofield with Rev. F. D. Horner, L.R.; Miss Horner, H.R.; Mrs. Bowers, L.R.; Zerlina, H.P.; Mrs. Nicholls, L.R.; and Lady Holmesdale, M.R. Mr. R. Gorton was the only exhibitor in Class G for twelve selfs or other varieties, and was awarded the first prize.

CARNATIONS (single blooms).—*Scarlet Bizarres*.—First, third, and fifth, Mr. B. Simonite with Seedling 209, S.B., Admiral Curzon and Garibaldi; second and sixth, Mr. J. Booth with Admiral Curzon

and Mercury; fourth, Mr. R. Gorton with Admiral Curzon. *Crimson Bizarres*.—First and fifth, Mr. R. Gorton with Black Diamond and Saturn; second, Mr. J. Booth with Eccentric Jack; third, Mr. G. Rudd with J. Hextall; fourth and sixth, Mr. T. Bower with Milton. *Pink and Purple Bizarres*.—First and sixth, Mr. J. Booth with Jas. Taylor; second and fifth, Mr. B. Simonite with Sarah Payne and J. Taylor; third, Mr. G. Rudd with Sarah Payne; fourth, Mr. R. Gorton with Saturn. *Scarlet Flakes*.—First, second, and third, Mr. J. Booth with Sportsman, Annihilator, and James Checham; fourth, fifth, and sixth, Mr. B. Simonite with Frank Simonite. *Rose Flakes*.—First and second, Mr. R. Gorton with Robin Hood and Tim Bobbin; third and fourth, Mr. T. Bower with John Keets; fifth and sixth, Mr. Booth with James Merryweather and Sibyl. *Purple Flakes*.—First and third Mr. G. Geggie with Dr. Foster and Lord Milton; second, Mr. Booth with James Douglas; fourth and sixth, Mr. B. Simonite with J. Douglas and J. P. Sharp; fifth, Mr. Bower with the former variety. *PICOTEES* (single blooms).—*Heavy-edged Red*.—First and fourth, Mr. R. Gorton with John Smith; second and third, Mr. Booth with the same variety and Brunette; fifth, Mr. G. Rudd with Mrs. Dodwell; and sixth, Mr. T. Bower with J. Smith. *Light-edged Red*.—First and sixth, Mr. B. Simonite with R. Gorton and Violet Douglas; second and third, Mr. G. Rudd with Thomas Williams; fourth, Mr. John Beswick with Violet Douglas; fifth, Mr. Bower with Wm. Hewitt. *Heavy-edged Purple*.—First, second, third, and fourth, Mr. B. Simonite with Mrs. A. Chancellor, Mr. Niven, and Zerlina; fifth, Mr. R. Gorton with Mr. Summers; sixth, Mr. G. W. Schofield with Norfolk Beauty. *Light-edged Purple*.—First and sixth, Mr. Booth with Ganymede and Mary; second, Mr. G. Rudd with Minnie; third and fourth, Mr. G. Schofield with Mrs. Nichols; fifth, Mr. G. Geggie with Mary. *Heavy-edged Rose or Salmon*.—First, Mr. G. Geggie with Miss Horner; second, third, and sixth, Mr. G. Rudd, and fourth Mr. Booth with the same variety; fifth, Mr. R. Gorton with Fanny Hilton. *Light-edged Rose or Salmon*.—First, third, and fifth, Mr. G. Geggie with Miss Wood; second and fourth, Mr. R. Gorton with Mrs. Nichols and a seedling; sixth, Mr. G. Rudd with a seedling. *Premier Carnation*.—Rob Roy, R.F., shown by Mr. R. Gorton. *Premier Picotee*.—Muriel, H.P., a seedling shown by Mr. Hewitt of Chesterfield.

RASPBERRIES IN TRENCHES.

SOME years ago an account appeared in your columns of how a gardener formed a most fruitful Raspberry bed, by opening trenches and burying a large quantity of vegetable refuse I think. Will you kindly repeat the advice as an appendix to the article on Raspberry culture last week?—J. E.

[The following is an extract from the article referred to, which was communicated by Mr. Luckhurst. We saw the Raspberries in question when in full bearing, and the canes and crop were remarkable—

"Having had occasion to pay more than ordinary attention to the culture of this fruit, a few words concerning a failure and its remedy may prove useful to others. In planting a few rows about four years ago no particular care or preparation of stations was thought necessary, although the soil was obviously the reverse of rich. Unbroken success had very likely given me an impression that the Raspberry would thrive anywhere and in almost any kind of soil, and this feeling was strengthened by the sight of a bed of 'wild' Rasps growing luxuriantly in an Alder swamp within 100 yards of the garden. The soil was therefore simply trenched, manured heavily as for vegetables, and the Raspberries planted. A tolerably vigorous growth yielding fruit in due course was the result. But I was not satisfied; the fruit was neither so large nor plentiful as was required, and I resolved to start afresh, reserving the old plants for present exigencies.

"In making the new bed particular attention was given to ensure a robust growth, which in the Raspberry implies an abundance of fruit, and to arrange the whole so as to make it an easy matter to protect the fruit from the ravages of birds. This was managed successfully by making the rows side by side 5 feet apart, and with the plants 1 foot apart in the rows. Trenches a yard wide, 2 feet deep, and filled with the soil—leaves and dung of some old hotbeds well chopped and mixed, being prepared for each row. Large fruit and plenty of it was the object in view, and Prince of Wales was chosen as the best kind for culinary purposes, its fruit being very fine; but as it is not so sweet as some it would probably not be generally liked for a dessert fruit.

"It was reasonable to suppose that this careful preparation of the bed would produce proportionate results, but I must confess I certainly did not expect to see anything like the extraordinary vigour of the first year's growth. Not only did the roots spread over the trenches, but they quickly met and became interlaced in the alleys, the entire surface soon bristling with suckers, which could only be kept under by repeated hoeings. The canes left to grow in the rows were wonderfully robust; and the old canes, which had been shortened to about a foot at the time of planting, put forth some shoots bearing such good fruits as to cause one to regret having shortened them so much. I do not, however, think it good practice to leave the canes of a new bed unpruned as is sometimes done, but would always reduce them to 1 or 2 feet. In autumn when the leaf had fallen two wires were strained along each row, one 2 feet from the ground,

and the other about 3 feet 6 inches; the canes were then pruned a uniform height of 4 feet, tied upright to the wires, and the work was complete.

"The bed has now been in full bearing for two seasons, the fruit being both abundant and fine. A heavy annual top-dressing of manure is given to the alleys. The soil is never disturbed, but remains intact just as it was left after the planting. As the fruit ripens the bed receives one or two thorough soakings of water or some liquid manure, which proves very beneficial to the crop, making the latest pickings of fruit quite equal to the first in size and colour."]

COREOPSIS LANCEOLATA.

A METROPOLITAN correspondent, who has all the difficulties to contend with which beset town gardening, sends us a spray of *Coreopsis lanceolata* (fig. 25), accompanied by the following re-



Fig. 25.—*Coreopsis lanceolata*.

marks upon the plant, which he justly describes as one of the best in the genus.

"Amongst the not very numerous plants that I can regard as satisfactory in my town garden, which, though elevated in position, is yet exposed to the influence of far more smoke than is beneficial to plant life generally, is the lance-leaved Bug-nut, of which I send a specimen. This plant grows vigorously and flowers freely during the summer months, and I find its bright yellow flower heads attractive both upon the plant and when cut and arranged with other simple flowers in a vase. One valuable character it possesses is that it succeeds in almost any description of fairly good garden soil, and where the facilities are limited for studying the peculiarities of plants in respect of position and soil such an absence of fastidiousness is of much importance. I am aware that this *Coreopsis* is far from being a novelty, and possibly there are few readers of the Journal who are unacquainted with its

merits; still this brief record may induce some who are situated like myself to find a place for it.—URBAN."

ANTWERP INTERNATIONAL EXHIBITION.

BELGIUM, while being admittedly a kingdom of industry, is also a land of fêtes. Long days of labour—much longer than in England—appear to necessitate compensatory periods of rest, or rather of change; and the people, if they know how to work with assiduity, certainly know how to enjoy themselves. About the 15th of August the annual communal fêtes are held at Antwerp, these being of a character which have no analogy in England, and it is but fitting in a nation of horticulturists that an Exhibition such as the one under notice should be a prominent feature of the holidays that are held at given intervals in the great centres of population. During the last and the present year the demonstrations have been on a larger and more elaborate scale than usual, as commemorative of a distinct epoch in the history of the nation, last year having been the jubilee of its independence, the celebration of which has extended at intervals to the present time, more particularly as regards the ancient city that has made such rapid strides in artistic and commercial progress during the past half century. In something like the time named the population has increased from 65,000 to 200,000 within the fortifications, and the increase of wealth has at least been proportionate. A large portion of this wealth has been devoted to public improvements, and in developing the resources of a town than which few others on the Continent enjoy such a favourable position. Not long ago it was cramped and quaint, but now scope is afforded for a variety of attractions. Quaint, indeed, it remains, and it is hoped will continue, as this forms one of its most striking features. Its ancient character is as marked as ever, perhaps even by the contrast afforded by modern additions more marked; and every year Antwerp is being rendered more agreeable, not only to its resident population, but as a great emporium of trade and pleasure, in which other nationalities participate. Its boulevards are becoming matured, and its beautiful park, squares, and gardens under the skilful superintendence of M. Henri de Bosschere are increasing in attractiveness yearly. Its Zoological Garden alike in design and condition is one of the finest in Europe; and education, music, and the fine arts are cherished, promoted, and flourish as of yore. Horticulture receives its share of encouragement, and the latest results were seen in the fine Show that was arranged last Saturday and closed on Tuesday.

The Exhibition was organised by the Royal Horticultural and Agricultural Society of Belgium, which is composed of some five hundred subscribing members, and substantial state and municipal aid was rendered by a contribution of some 12,000 francs to the prize fund. No such advantages are conceded to horticulture in England. In arrangement and ceremonial, too, the Show, as all great Belgian exhibitions are, was essentially different from our English exhibitions. The custom of devoting the day prior to the Show for judging, and the night for arranging the plants artistically, was adopted. This precludes the necessity of hurry and bustle, and the work is performed deliberately and pleasurably.

On Saturday morning the Jury, which included representatives from England, France, and Spain, in addition to Belgian horticulturists, assembled in the hall of the Society of Harmony. After an address of welcome of the Vice-President of the Society, Baron Osy de Wycken, the roll was called, and about fifty answered to their names—Messrs. Manning, Chelsea; Prince, Oxford; and Wright forming the English contingent. Divided into nine sections, with a President and Secretary to each, the work of adjudicating the prizes proceeded, and this completed, nearly a hundred members of the Society and officials of the Show occupied the remainder of the day at a bountiful luncheon, Baron Osy presiding. The plants during this time were placed in groups throughout the building, yet in positions where each group could be turned to the best account with a minimum of labour. This task devolved on M. Fuchs, the eminent landscape gardener from Brussels. Under his directions the plants were disposed in the most tasteful and effective manner, and a beautiful garden—or rather three or four gardens—were arranged. With the exception of new and very small plants, Orchids, and cut flowers, the collections were arranged on the ground, the smaller flowering plants forming borders to the larger masses of foliage plants and beds. The result of the arrangement was so satisfactory that a gold medal was awarded to M. Fuchs for the talent he had displayed in the work.

The schedule contained 142 classes, and a hundred medals were offered as prizes. Among the chief of these were the Queen's gold medal for Orchids, won by M. Louis Van Houtte; the 500 franc gold medal of the Federation of the Belgian Horticultural Societies, won by Madame Le Grelle-Dhanis; the gold medal of the President of the Society, Baron de Caters, for the stranger who contributed most to the embellishment of the Exhibition, won by MM. Jacob Makoy and Co., Liège; and the Vice-President's medal for the most successful amateur Belgian exhibitor, won by Madame Le Grelle-Dhanis; and the King's gold medal for a hundred stove and greenhouse plants, distinct, won by M. Louis Truyma.

The Show was held in the great hall of the Society of Harmony, and three other large rooms in connection. In the entrance corridor were garden requisites of various kinds, and admirably executed plans of parks and gardens lined the walls. The first room contained

works of art, for which medals were awarded, these chiefly consisting of large and beautiful framed oil paintings of flowers, of which there was a great number. On the side tables were the fruit and vegetable collections, which were very much inferior to English exhibits of the same nature. Ascending the staircase the next, a very fine room, was devoted chiefly to new and rare plants. On the side tables groups of excellent Crotons, &c.; on the floor a magnificent collection of Marantas from Madame Le Grelle-Dhanis occupying the post of honour at the end. The broad corridor, which may be described as the third room leading to the Grand Hall, was similarly occupied—new plants on tables, and valuable groups of plants disposed on the floor. Thus far the Show was very beautiful, but the effect culminated in the Great Hall, the auditorium of which is reached by a wide and deep staircase. The bright flower beds in the centre of this hall, and the noble groups and beautiful borders of plants of almost every kind pleasingly associated, had a most imposing and picturesque effect as seen from the standpoint some 20 feet above them. This hall contained the principal general collections—Palms and other fine-foliaged plants, Ferns, Liliaceae, Pelargoniums, Fuchsias, Petunias, Asters, Dianthus, Verbenas, Phloxes, and miscellaneous groups. In the side galleries were cut Roses and Gladioluses, also collections of Gloxinias, Begonias, Sarracenias, Bromeliads, Cannas, Aspidistras, and too many Coleuses. The whole of the space was occupied, yet there was room for visitors to enjoy the Exhibition, especially as these, owing to wet weather that unfortunately prevailed, were not so numerous as was desirable.

Only some of the leading exhibits will be referred to, as a detailed notice of the exhibits in many of the classes, and an enumeration of the winners of the prizes, would not be of interest to the majority of readers. In Class 1, six plants of recent introduction in or out of flower, M. Van Houtte was awarded the first prize, the remaining honours going to MM. Jacob Makoy & Co. The first-prize collection included *Dracena Lindenii*, a variegated form of *D. fragrans*, with the drooping leaves of the species, but the prevailing colour being greenish orange, with a clearly defined ribbon of green down the centre of each leaf. As exhibited the plant was highly attractive, but it appears to lack vigour, and it is a question whether the colour will prove constant and the plant retain its health and freshness under ordinary cultivation. *Alocasia Thibautiana*, very healthy and fine foliage; *Aralia Chabrieri*, a plant of great elegance, and in all probability will prove of substantial merit as a room and general decorative plant; the leaves are narrow, very rich green, and the plant is very attractive; it is almost certain to become highly popular. The same group contained *Dieffenbachia splendens*; *D. Leopoldi*, fine; *Schizmatoglossis crispata*, small; *Heliconia aurea vittata*; *Amorphophallus lacoure*, as if splashed with whitening; *Phrynium Lubbersi*, *Paulinia Hooibrenki*, and a small plant of *Aralia Massangeana*. The notable plant in M. Makoy's group was *Dracena Massangeana*, exactly the reverse in marking of *D. Lindenii*, the central stripe being yellowish and occasionally divided, the remaining portion of the leaves green. The plant is decidedly more vigorous than *D. Lindenii*, if less bright, and will be useful both as an exhibition and decorative plant. *Eugenia Glazioviana*, an evergreen of compact yet elegant habit, and with very small leaves, showed with great distinctness in this group. M. Linden, Ghent, exhibited a group of new plants not for competition, and was awarded a medal of 100 francs. Amongst them we noticed *Kentia Luciana*, with large handsome leaves; *Heliconia triumphans*, a fine Maranta-like plant, with large darkly-veined leaves; *Ronbergia Morreniana*, *Piper eburnea*, *Pothos aurea*, *Ficus decora*, very large leaves, *Lycopodium squarrosus*, and *Aspidium Rodigasiana*, an elegant hardy Fern of bold growth. The chief medal for twelve new and rare Palms was won by Messrs. E. Vervaeet and Co. with fresh healthy plants as follows:—*Kentia Luciana*, *K. Lindenii*, *K. gracilis*, *K. robusta*, *Calamus viminalis*, elegant, with spiny stems; *C. lanatus*, *Pritchardia macrocarpa*, *P. aurea* with yellow stems, *Acanthopanax Herbstii*, *Thrinax tunicum* very dwarf, and *Ravenia Hildebrandti*. M. Van den Wouwer received the silver-gilt medal for a very excellent group. Both the prizes offered for a plant of recent introduction, remarkable for its inflorescence, were awarded to M. Jacob Makoy & Co. The first for *Tillandsia Leiboldiana* with three dense spikes of blue flowers, leaves small, and habit of plant dwarf; and the second for *Vriesia incurvata*, of no particular merit. The same exhibitors took the three medals in the corresponding class for a fine-foliage plant—first with *Dracena Massangeana*, above described; second with *Crinum Verschaffeltii*, with large striped foliage; and third with *Anoetochilus Meinerti*, with large leaves richly coloured. In the class for a new hardy plant, remarkable for the beauty of its foliage, the first-prize medal was granted to M. Charles Van Geert, Antwerp, for *Abies commutata argentea*. It has shorter leaves than *A. Englemanni*, and the distinct silvery blue tint that pervades the plant renders it extremely attractive. This new Conifer is also fortunately of proved hardiness, for while *A. Englemanni* and many others were killed by the frost that was so intense in Belgium last winter, every plant of *A. commutata argentea* passed the ordeal without injury, and it must be regarded as a valuable acquisition. The medals for new flowering plants raised from seed went to M. Van den Wouwer for *Anthurium Schertzerianum* Van den Wouweri, with a twin spathe; and to M. Van Houtte for *A. Rothschildianum*. In the class for a new foliage plant from seed the first prize medal was won by M. de Smet-Duvivier with *Dracena medio-picta*, a variegated form of *D. indivisa* or an allied

species—the prevailing colour is soft yellow, and the plant appears of free growth; the second by M. Constant Lemoine with *Dracaena La France*, a stately form with rose-tinted leaves; and third to M. Alexis Dallièr, with a new narrow-leaved *Croton*, resembling *C. interruptus aureus*.

In the amateurs' class for thirty stove or greenhouse plants the gold medal of 200 francs was won by M. Florent Pauwels. The rarely seen and nearly hardy climbing plant *Physianthus albus* was included in this group in the form of a trained pyramid. This plant has the characters of three others—it has the growth and habit of the *Clematis*, the flowers of the *Jasmine*, and the odour of the *Privet*; it is very free and pretty. Another old plant, *Eucomis punctata*, was in fine condition. It was producing ten strong spikes 18 inches long of its powerful *Gardenia*-scented flowers. *Pleroma elegans* was dwarf and well-flowered. *Agapanthus umbellatus albus* was very fine, and *Attaccia cristata* vigorous, bearing a strong spike of its singular nearly black flowers. In the corresponding class for nurserymen the gold medal was granted by acclamation to M. Jacob Makoy and Co. with a choice and rich group principally composed of *Orchids* and *Nidulariums*, conspicuous among which were *N. Innocenti* with scarlet leaves and white flowers, and *N. fulgens* with similar leaves and blue flowers.

The Queen's gold medal for the finest collection of *Orchids* was easily won by M. Louis Van Houtte, who staged sixty-five plants, not large but healthy examples, in 5 and 6-inch pots—a varied and choice collection considering the lateness of the season for plants of this nature. The Queen's gold medal for a hundred stove and greenhouse plants was awarded to M. Louis Truymen for a very meritorious collection.

The great prize of the Exhibition, a gold medal of 500 francs, offered by the Federation of the Belgian Horticultural Societies for fifteen grand examples of ornamental plants, brought out two of the finest groups that have ever been arranged at any exhibition. After much deliberation and close examination that very successful exhibitor, Madame Le Grelle-Dhanis secured the prize by one vote. The collection was composed principally of *Palms*, which were large in size and in superb condition; there were, however, splendid examples of other plants, notably *Marantas* and a striking specimen of *Anthurium Hookeri*, with leaves about 5 feet long and 18 inches broad. M. Van den Wouwer also staged a magnificent collection. The *Palms* lacked the rich gloss of those in the premier group, but of the other foliage plants were superior, notably the *Cycads*, a fine *Croton*, *Vriesia Glazouana*, and *Dieffenbachia Bausei*. This exhibitor secured the chief honour for twelve *Cycads* with rare and excellent examples, also that for twelve specimen *Palms* with plants of remarkable merit. In the front of this group was a plant of *Acalypha macrophylla* with leaves 18 inches long and nearly a foot across, and finely coloured. It was a most conspicuous object, and decidedly a credit to the cultivator. Ferns were by no means equal to the *Palms*, and superior specimens of both hardy and tender kinds are often seen at the leading English exhibitions. *Marantas* were magnificent, the twenty specimens from Madame Le Grelle-Dhanis being granted the chief medal by acclamation. The plants were from 3 to 5 feet in diameter, grand in foliage and colour. Such fine examples of culture are never seen at our English shows. The same exhibitor secured chief honours for *Bertolonias* and *Crotons*, both of which were good, but the last not equal in colour to the best English-grown plants. *Dracenas* from M. Ad. D'Haene represented superior cultivation, the plants being dwarf with fine foliage, in good colour. MM. Vervaeke and Dallièr were granted medals for *Crotons*, which were good in colour and in choice varieties, two of the most striking being *C. Frank Sellicre*, with large creamy waved foliage, 18 inches long by 3 inches wide; and *C. latimaculatus*, resembling *C. Hawkeri*, but the centre portion of the leaf deep orange. *C. magnoliæfolius* from M. Vervaeke had enormous leaves. The best coloured *Croton* in every group in which it was staged was *C. Williamsi*, and in M. Dallièr's gold-medal miscellaneous group *C. Prince of Wales* in superb condition. *Caladiums* were poor; *Agaves*, *Yuccas*, and *Phormiums* from M. Benoit Van Mieghem good, and *Bromeliaceous* plants excellent; Messrs. Makoy, Van den Wouwer, and Van der Mersch-Mertens exhibiting remarkably fine collections, and received the honours in the order named. Striped and variegated-foliaged plants both hardy and tender, also *Arundos*, made effective classes that showed to advantage among the richer and darker foliage plants. The chief prize-winners were Comte de Bergeyck by acclamation, M. Vermeulin, and M. Pynaert-Van Geert. The last-named exhibitor was successful with *Aucubas*, *Sedums*, &c., and M. Van den Wouwer with *Echeverias*, which were very good. Baron de Caters exhibited the best specimen *Coleuses*, but not equal to the best English-grown plants; and M. Pynaert-Van Geert had the principal medal for new varieties. *Pelargoniums* imparted brightness to the Show, and many good examples of culture were staged. The leading exhibitors were M. Everaerts, Baron de Caters, and Comte de Bergeyck. *Fuchsias* were poor; *Tuberous Begonias* good, but not equal to the best at the English shows; and the same remark applies to *Gloxinias*. The best plants were from M. Everaerts, but his varieties were not equal to those of Baron de Caters. Single specimen plants were not as a rule of commanding merit. The most remarkable beyond doubt was a specimen *Abutilon* resembling *A. vexillarium*. It was grown as a foliage plant, and was about 8 feet high and 7 feet in diameter—a dense close bush, perfect in outline, and a very striking object. In most of the other

classes the first prizes were withheld, and the plants therefore do not call for comment.

CUT FLOWERS.—These were neither numerous nor of superior quality. The Rose season has doubtless passed for the best blooms, but those that were exhibited, except M. Van Houtte's gold-medal collection of a hundred varieties, were by no means shown to the best advantage, as the blooms rested in the moss instead of being raised a few inches above it. In most of the classes three to five blooms were grouped of each variety, and their appearance was the reverse of imposing as compared with the magnificent boxes that are staged at home. A prize was offered for the greatest number of *Roses*, and the gold medal of 200 francs was won by MM. Ketten, frères, who staged apparently about five hundred varieties. *Gladioluses* were far below Mr. Kelway's standard, and *Dahlias* were rough and irregular.

Several groups of plants were not in competition, yet medals were awarded for them. Some of these exhibits have been referred to, but the most noteworthy was the grand miscellaneous group of choice plants from M. Dallièr, for which a gold medal was granted.

On the first day of the Exhibition a congress was held of the members of the Circle Floral, a young, strong, and flourishing Society. Papers were read at intervals throughout the day by experienced horticulturists. Belgian courtesy is proverbial, and it has been experienced on every hand by strangers during the present week, and of which the grand banquet given in connection with the Show on Monday night was a characteristic expression. It was as great a success as the Show, and more need not be said.

TWO GOOD VEGETABLES.

STRATAGEM PEA.—This very superior quality *Pea* has and is still doing excellently. The plant is very robust, and notwithstanding the dry weather has not shown any trace of mildew. It produced in my case its first pods on the main stem 1 foot 9 inches from the ground, and on this part of the plant were nine pods, with an average of seven large "green" peas in each out of a possible nine or ten. It branched 10 inches from the ground, doing so from five joints, the five branches bearing eleven pods of five peas each. The full height of the haulm is 2 feet 10 inches. For cropping and good quality it is very desirable for main crop, and especially so in gardens of limited extent, in which the taller-growing kinds cannot be accommodated.

LEVIATHAN BROAD BEAN.—I am delighted with this *Bean*, and so are all that see it. Its sturdy branched growth and long pods have an attractive appearance. The pods are borne in pairs commencing at 12 to 15 inches from the ground, the pods in this instance being 10 to 14 inches in length, and containing six large beans of good colour, being "greener" than the ordinary Longpod and Windsor section. The pods invariably fill well, not one that I have opened contains less than six beans. The number of pods on a stalk is six, and the beans are the size of Windsor, though it is evidently of the Longpod section, and is very much in advance of Seville Longpod, or indeed any other. The total height of the haulm, 2 feet 9 inches, renders it admirably adapted for small gardens, not the least of its merits being its earliness.—G. ABBEY.

THE CHESTER NURSERIES.

APPROACHING the ancient city of Chester I inquired of a fellow traveller, evidently a Cestrian, what he considered the staple industry of the place. "Well, sir," he replied, "if it is celebrated for one trade more than another it is the nursery trade, for the Dicksons have some three hundred acres of land there and employ hundreds of men. Mr. James Dickson's nursery is not much more than five minutes' walk from the station, and Mr. Arthur Dickson's a little further on, and if you are interested in such places you had better go and see them. We are rather proud of these gardens, and the owners are most estimable men; they are smart business men no doubt, but real gentlemen, hospitable and kind." It so happened my chief object in visiting Chester was to see those nurseries, and my anticipations were not rendered the less pleasurable by the opinion recorded. I found my informant's account quite accurate, for the nurseries are certainly very extensive, and their owners and assistants were most courteous. As these two establishments have been frequently and fully described in the *Journal*, a brief reference to them will suffice now. The nearest, as is natural, was entered first, this being

MESSRS. JAMES DICKSON & SONS, NEWTON NURSERY.

The extent of nursery ground belonging to this firm is 250 acres, considerably more than half being included in the nursery under notice. The soil is variable, in some places being of a sandy nature, in others sound strong loam; hence it is that the produce is as varied as it is good. In one part we find *Coniferae* decidedly at home, and *Rhododendrons* and *American* plants generally

flourishing; in another fruit trees are growing in the most satisfactory manner, and in stronger soil still Roses are luxuriating. A great acreage is devoted to each of these classes—for there nearly everything is grown in thousands—indeed Conifers, including Larch, Spruce, and other Firs, are grown in millions, as also is “deciduous stuff,” which term includes all kinds of ornamental trees, forest trees, and hedge plants, such as Quick. The nursery, in fact, is as interesting to the forester as to the gardener. The seedling beds of the Firs most in demand, and that demand must be enormous, form a striking feature of the nursery. There are undoubtedly several millions of trees there, and scarcely a weed to be seen amongst them. Evergreens, old and useful, new and rare, are also grown extensively; but the winter has done much damage in many of the quarters, especially amongst common and Portugal Laurels. Standard Roses have also suffered severely, and Japanese Privet. It is gratifying to notice that while Decodars have been much cut, the most rare and ornamental Conifers—Cupressuses, Thuias, Retinosporas, &c., have endured the wintry ordeal well, and the hardiness of those that are now so healthy has been firmly established. Many acres are devoted to fruit trees; almost every popular variety of fruit is represented, and every form of tree that is required in gardens is provided.

The glass structures are numerous, and all are fully and usefully occupied. Vines in pots are grown largely and well by Mr. Fancourt, and Figs in pots command attention by their numbers and quality. There are hundreds of trees in 6-inch pots as healthy as it is possible to conceive Figs to be. Many of these raised from eyes in January are now showing fruit, and others a little older are ripening crops of from six to twelve fruits each. These miniature trees are models of good culture. Some large structures are filled with stove and greenhouse plants, of which there is a good collection. One house resembles a vista in an antipodean forest, as it is filled with Tree Ferns, many of the trunks being very fine; on the back wall Camellias are trained, the demand for such plants being considerable for covering the back walls of vineries. Camellias in pots, home-worked, are very numerous and in fine healthy condition. Several conically trained specimens of Azaleas are both large and fine, and one of these plants yielded flowers this spring that realised £11; at that rate Azalea-growing is lucrative. “Bedding plants are going out of fashion” is a somewhat hackneyed cry now-a-days; but a few are yet sold at Chester, a stock of 250,000 having been disposed of at this nursery during the spring of this year, and the demand, I was informed, increases yearly. Succulents of all kinds, from Agaves to Sedums, are largely grown. Florists’ flowers have a large share of attention, Dabbias, Carnations, Auriculas, &c., being numerous and the varieties choice. Of herbaceous and alpine plants there is a large and well-cared-for collection, all the favourite old forms, with not a few rarities, being included; in fact there appears to be something, or rather a great deal of everything, in this nursery, which is in telephonic connection with the establishment in Eastgate, more than a mile distance, and conversation between the two stations can be conducted with the greatest ease and with a great saving of time and labour. Mr. Ferguson, the manager, and the heads of the respective departments, add much by their intelligence and courtesy to the pleasure of a “run round” the extensive and interesting grounds and houses of the Newton Nursery.

MESSERS. FRANCIS AND ARTHUR DICKSON & SONS, UPTON NURSERY.

No wandering horticulturist finding himself in Chester would think of leaving the city of antiquities without also inspecting this establishment. So well known does this nursery appear to be that the stranger may find it even without mentioning the name of Dickson, for not in the city only but in a wide district surrounding, its abbreviated title, “F. & A.’s,” is well understood. This is a very large and beautiful nursery; the extent is about 175 acres, every portion of which is well stocked and every part clean. The most striking feature on entering the grounds are the long and highly attractive borders of choice Conifers. The plants are arranged ribbon fashion, and the effect of rows 200 yards long of gold and green and glaucous Conifers is unquestionably beautiful, the borders being as clean as a flower garden. In the grounds nursery beds of Firs of various kinds show the extraordinary demand that must exist for these trees at Chester, and deciduous forest and ornamental trees of all kinds are grown on a scale of great magnitude, while evergreens, such as Hollies, Rhododendrons, &c., are grown by the acre. Great attention is devoted to Roses, but the frost of last winter had a ruinous effect on the standards. Out of thirty thousand planted not a thousand was saved. The fashion for standard Roses has been severely shaken of late, especially in cold localities, and the demand for dwarfs is

correspondingly increasing, and probably will increase. Fruit trees form a great branch of business in this nursery, some forty acres being devoted to them, and the stock is remarkable for its cleanliness and health. All kinds of trees are grown, and all forms of training represented.

The glass structures are numerous. Several houses were filled with Tea Roses in pots. The plants are mostly worked on the standard Briar, the growth being free, clean, and in the most satisfactory condition. Camellias and Azaleas are represented in great numbers and superior quality; in fact all kinds of stove and greenhouse plants are well and largely grown, as also are herbaceous alpine and bedding plants, the sale of the latter being on the same large scale as above mentioned, so that half a million are raised at Chester and sold yearly. Fruit trees in pots command attention by their excellent form, cleanliness, and health, and in one house some conical specimens of Acer Negundo variegata were remarkable for the purity of the foliage. Thus grown it is a question if there is any variegated plant equally effective for decorative purposes.

This is but a mere outline sketch of these nurseries, which together cover over three hundred acres, and both firms have other nurseries at Chester and elsewhere. Those who desire a more detailed account of the Chester establishments will find the same in the Journal of last year, and there is therefore no need for unnecessary repetition here. They are fine establishments, and my fellow traveller was justified in regarding horticulture as a staple industry of Chester, and the citizens have reason to be proud of such fine “gardens.”

Both firms have extensive establishments in the city—seed and implement warehouses and every convenience for conducting trade in horticulture and agriculture on a large scale. Nothing could exceed the courtesy of the heads of the firms and the chiefs of their respective departments, and my first visit to Chester and its fine nurseries will be a “sunny memory” for years to come—indeed until I have the privilege of seeing the old city again.—VISITOR.

GRAPE-GROWING AS A PASTIME FOR AMATEURS.

As some encouragement to amateurs who would like to commence Grape-growing, and are afraid to make a start owing to doubts and difficulties which are conjured up in their minds, I have thought it might be useful if I relate the experience of an old retired gentleman in this district, who at my suggestion some years ago was induced to make a small beginning. This has proved to him a great boon in many ways, but chiefly, as he firmly believes, in prolonging his life by many years, in consequence of the agreeable occupation and moderate exercise which the Vines have occasioned him. He attends to them entirely himself, including stoking, thinning the Grapes, and supplying water. Many people are under the impression that because they live in a town the luxury of Vine-growing must be denied to them; but this is quite a delusion, as I hope I shall be able to prove. There is no reason whatever why every householder who may have a fair-sized back or front garden to his house cannot have a vinery or two and plenty of good Grapes also, if he plants the right sort of Vines and sees that the preliminary work of border draining and making is properly carried out.

This gentleman’s residence is in a town of about eight thousand inhabitants; at the back of his house he has a small yard walled in. Against a portion of this wall with a south-west aspect he built his first very small vinery—a rough-and-ready structure built by himself and a carpenter at a trifling cost, obtaining a small second-hand boiler with two rows of piping, a flow and return. A border 3 yards wide and 1 yard deep was made with a compost of turf cut into not too small pieces, and into which had been previously mixed a little half-inch bones and a sprinkling of old mortar rubbish, and in connection with which a drain had been laid to take away all stagnant water. His Vines grew luxuriantly the first year and soon reached the top of his house, and by a little firing in the autumn to harden the wood and ripen the buds of the Vines, he had the satisfaction of seeing in about twelve months after planting a good show of bunches on all the Vines as the result of his own attention and care with an occasional hint from me. The Vines were not allowed to carry more than three bunches each the first year, but were cut back as is usual, leaving them about 2 feet long. The second year they also grew well and ripened the Grapes they carried finely. In the autumn as before they were assisted with a brisk fire heat for about a month or six weeks (from the end of August to the beginning of October), to help to harden and ripen the wood of the Vines. This is of much more importance than many are aware. The want of attending to it is more often the cause of failure

(especially in the case of young Vines) than anything else I know. The Vines were again cut back in the winter, this time to 4 or 5 feet, and carried the next year from five to seven bunches of Grapes each. The year after (third year of bearing, four years after planting) his house was full of good plump Grapes which would have done credit to any professional man, and of which I assure you the gentleman was very proud.

Encouraged by his first success he built another vinery against a higher wall and rather longer in the same yard, which he planted with Black Alicante, and which has succeeded even better than the first, and which returns to him annually for surplus Grapes sold the handsome sum of from £25 to £30. The old gentleman declares that he has no property (and he has a variety including house property) which returns him anything like the interest on the amount expended as this vinery does.

I hope what I have narrated above will encourage others to try and do likewise. There are few districts to be found in which there are not gardeners who would be willing to assist gentlemen in this matter with suggestions and directions how to proceed. To those who have not this channel of information, with your permission I shall be glad to give more detailed directions in a future paper. —DRUID.

CHOICE CAMPANULAS.

TURNING to another and distinct section of the genus, one species that is especially worthy of notice now is *C. Vidalii* (fig. 26), concerning which a note was published recently. It is a semi-shrubby or woody species from the Azores, where it was found growing upon a rock on the east coast of Flores by Captain Vidal, in honour of whom it is named. It has narrow somewhat spatulate leaves with serrated margins, the flowers being white, glossy, and bell-shaped, but curiously contracted in the middle. It is best suited for culture in pots, and its value for this purpose is admirably shown at Kew, where in the Cape House a number of plants have been flowering profusely; indeed, for a cool house the plant is one of the most ornamental of its genus.

The following account of it appeared in this Journal nearly twenty years ago:—"A half-shrubby maritime Bell-Flower, probably half-hardy or requiring a greenhouse. It is described to us by a gardener well acquainted with English flower-gardening as a very ornamental species. The plant forms a roundish mass 2 feet high, with dichotomous thickened branches, terminating in a rosette of leaves of half-succulent half-leathery texture, smooth, spatulate-oblong, with revolute crenated margins. The few leaves which occur on the flowering stems are lance-shaped and nearly entire. The flowers grow in terminal racemes, which shoot out from the centres of the leafy rosettes; they are nodding, bell-shaped, and contracted in the middle, white or cream-coloured. Mr. Watson describes the leaves and branches as recalling to mind some species of *Saxifraga* or *Sempervivum*; in his dried specimen, shown in our figure, on which about three flowers were developed, several flower buds appeared abortive, or else would have been developed later and irregularly. It requires a mixture of two parts sandy loam and one part leaf mould. It increases freely from seed, but the seedlings do not bloom until the following year. It does well upon rockwork, but is rather tender, and the colour of the flowers is rather dingy. The whole plant has so little the appearance of a *Campanula* that it has been questioned whether it belongs to that genus, and it is suggested that it is nearer related to the genus *Musschia*."—X.

NOTABLE PEACHES AND NECTARINES.

EARLY BEATRICE.—A Peach that ripens in an unheated house the first week in July, and three weeks later upon an open wall, ought not to be condemned lightly, as I fear it has been by many who have not given that attention to its culture which it merits. In an early Peach house where the ventilators are not opened wide during the growth of the fruit it is so poor in flavour as frequently to be positively insipid; but in a late house under the influence of a free strong circulation of air, and also upon open walls, its flavour is full, rich, and delicious.

It has always been satisfactory here in a late house, and is this

year bearing a good crop of high-coloured fine-flavoured fruit out of doors, where there are two trees of it, one against a west wall and the other in a snug nook facing the south.

EARLY RIVERS PEACH.—A large tree of this Peach growing against a south open wall has a full crop of fruit, the first dish of



Fig. 26.—*Campanula Vidalii*.

which was ripe on August 8th. The fruit is large and good, but many of them have the objectionable stone-splitting peculiar to this variety, and which Dr. Hogg says, in the "Fruit Manual," "probably arises from imperfect fertilisation, the pistil protruding so far beyond the stamens. This stone-splitting not unfre-

quently causes the fruit to crack at the bottom, so that it breaks asunder easily, displaying an imperfect kernel, often mouldy. In such fruit the halves of stone are firmly attached to the flesh and often break in pieces when pulled out; split fruit is therefore never sent to table for dessert, but is used for stewing and tarts.

ADVANCE NECTARINE.—This delicious little Nectarine is certainly worthy of a place. I picked the first ripe fruit of it on the 5th of August from a tree which had to be transplanted late in spring after growth had begun, and therefore the date is not to be taken for a guide. I believe trees well established in the soil produce ripe fruit by the middle of July. The fruit is very juicy, very sweet, and richly flavoured. Early as is the better-known Lord Napier, it is not really fit for table before the first week in August at the earliest, so that by means of Advance the season of this deservedly popular fruit is lengthened by two or three weeks.

Several other sorts of Nectarines are in a flourishing condition, and have a nice crop of fruit on open walls this year. The best are Lord Napier, Balgovan, Rivers' White, Downton, Pitmaston Orange, and that delicious late Orange Nectarine Pine Apple. It is really pleasing to see trees on open walls once more without a trace of blister. There was a little scathed foliage in spring, but that has disappeared, and nothing can be better than the green clean healthy appearance of the leaves now.—E. L. O.

RABBITS AND PYRETHRUMS.

I HAVE seen it asserted that rabbits will not attack Pyrethrums. They will do so, and devour them, much sooner than many other plants to which they have generally a peculiar liking. They attack them greedily after the plants have flowered and have commenced producing their young shoots, also in the early part of the season when the shoots and leaves are tender. As the plants develop and the foliage matures the rabbits leave them to devour something more tender. After considering for some time as to the best mode of protecting the plants, I decided to syringe them with paraffin oil at the rate of a wineglassful to four gallons of water. This kept the rabbits away for a time, until all trace of the paraffin had disappeared. Two or three dressings in the spring, and again after flowering, might have the desired effect. I shall be glad to see the experience of other Pyrethrum growers on this subject recorded in the Journal.—L. D. W.



Now that the chief event in the horticultural exhibiting world in the present year—the INTERNATIONAL HORTICULTURAL EXHIBITION AT MANCHESTER on the 24th to 27th of August—is fast approaching, some of the chief points in the schedule may be again briefly referred to. Two hundred and thirty-seven classes are enumerated, of which those devoted to fruits—namely, seventy-three, form a large comparative proportion, vegetables and plants being also well provided for; while cut flowers, bouquets, table decorations, implements, and cottagers' productions are all likely to be well represented judging from the prizes offered. Special prizes of considerable value are also offered for plants, vegetables, and fruits by the Veitch Memorial Trustees, the General Horticultural Company (John Wills) limited, and Messrs. Sutton and Sons; Dickson, Brown, & Tait; Dickson & Robinson, and G. and W. Yates. Some of the chief classes in the several divisions are the following:—Fruits—for collections of fifteen and twelve kinds, £20, £15, and £10; £15, £10, and £5 as first, second, and third prizes respectively in the two classes; ten varieties of Grapes, one bunch each, £12, £8, and £5. Many other liberal prizes are also offered for Grapes, Peaches, Nectarines, Pine Apples, Pears, Apples, &c. One section of this class is confined to fruiterers, and another to fruits of foreign growth. In the latter France, Italy, Germany, Holland, Belgium, America, Turkey, and Egypt being represented. The most important special prizes for fruits are those offered by the General Horticultural Company—namely,

two of thirty guineas, and two of twenty guineas each. Among vegetables the highest prize is £10 for twenty varieties, while the principal amounts in the plant classes are £20, £15, and £10 for twenty miscellaneous plants. A remarkably fine display is confidently expected, as it is said that over five hundred intending exhibitors' names have been received. The President of the Society, the Right Hon. the Earl of Derby, will open the Exhibition at 2 P.M. on the 24th inst.

— MR. E. R. CUTLER, Secretary of the GARDENERS' ROYAL BENEVOLENT INSTITUTION, sends us the following—"I beg to inform you that up to and including this date (August 11th) the number of responses to the appeal on behalf of the Pension Augmentation Fund is 301, and the amount contributed is £364 9s. 4d., being an average of a trifle over £1 4s. each response. I take this opportunity of stating that I purpose attending the Great Fruit Show at Manchester on the 24th inst., where I shall have an office, and I shall be happy to receive subscriptions, collecting cards, &c., to enrol new members, to see many old friends, and I trust make many new friends, and to afford any information as regards the Institution that may be required."

— THE forty-second anniversary meeting of the ROYAL BOTANIC SOCIETY was recently held at the Gardens, Regent's Park, Mr. G. J. Symons, F.R.S., in the chair. The reports from the Council, Auditors, and Secretary gave a very favourable account of the condition of the Society. The year's subscriptions, £4250, had only been exceeded in two of the forty-three years of the Society's life, and the receipts from exhibitions, fêtes, and other sources had been good, and, after deducting the whole expenditure for the year, left some £600 to the credit of the Society. The liberality of the subscribers enabled the Society to maintain a special department for furthering the study of botany and its application to the several sciences, the arts, and manufactures, and the pressure upon this department was year by year increasing. During the session 710 free tickets of from one month to six months each had been issued to medical and other students, including forty-one artists.

— ONE of the most notable plants at the present time in the beds devoted to Malvaceous plants at Kew is a specimen of KITAIBELIA VITIFOLIA, which is about 5 feet in height, forming a close bush. The leaves are five-lobed, not unlike those of the Vine, as the name implies, but they are not quite so deeply cut. The flowers are large and white, the petals spreading widely, and being reversely ovate in form. The blooms are produced in considerable numbers, clothing the upper portion of the stems thickly, and imparting an effective appearance to the plant. Clumps at the back part of borders or in the foreground of shrubberies are attractive during the summer.

— MR. PETER HENDERSON recently read a paper in Ohio upon "Market Gardening Around New York," in the course of which he made the following remarks upon SPECIAL MANURES:—"The question of fertilisers for the use of the market garden is now becoming a very serious one for the market gardeners in such cities as New York, where the manure from the stables does not increase in the ratio of the increase of the lands cultivated, as perhaps half of all the products grown are shipped to adjacent towns and cities. Still there are few market gardeners who do not use stable manure, which costs when fit to go on the land from 2 dols. to 3 dols. per ton. This is put on in spring, at the rate of from fifty to seventy-five tons per acre, to which is often supplemented half a ton of Peruvian guano or bone dust, which is sown on and harrowed in on the land after the stable manure has been ploughed in. A great variety of fertilisers are used besides Peruvian guano and bone dust, such as fish guano, dry blood fertilisers, together with the various brands of phosphates;

but the majority of cultivators prefer pure bonemeal or Peruvian guano to all others. I saw a list the other day, wherein were enumerated no less than sixteen separate kinds of special fertilisers for thirty different crops, with the chemical elements of each split down to even one-half of 1 per cent. Now, I know nothing whatever about agricultural chemistry, and it may be presumption in me to criticise such a list; yet when I am told that one kind of fertiliser is needed for Cabbage and another kind for Turnips, one for Sugarcane and another for grass plants, if not of the same family, at least of the same natural order—I am forced to the conclusion that science, so-called, is taking the place of common sense, and is in direct opposition to the experience of the practical farmer or gardener in his operation in the soil. In our market gardening and greenhouse operations we cultivate largely nearly every known family of plants, and in my long experience I have yet to see a fruit, flower, or vegetable crop that was not benefited, and nearly in the same degree, by a judicious application of pure bone dust; and I would here suggest to the advocates of special fertilisers that in their experiments they try equal weights of pure bone dust to the half of the crops of Wheat, Potatoes, Cabbage, or Strawberries, being experimented on by the “specials,” and note the results. I do not mean to be understood that these so-called special fertilisers do not answer the purpose of the crop to which they are applied; but what I protest against is the hair-splitting distinctions claimed for them, confusing and troublesome to the cultivator, if of no practical value.”

— PART 18 of “LETTS’S POPULAR ATLAS” contains two sheets of the Watershed Map of England and Wales, representing Westmoreland, Cumberland, parts of Lancashire and Northumberland, and the Isle of Man in one, and North Wales in the other. Two sheets of the general and statistical map of India are also given, showing Sindh, Cutch, Guzerat, Berar, Malwa, and Khandeish. All are beautifully executed and very clear in the details.

— AN amateur writes—“I am always interested in reading your articles and correspondence on the subject of STRAWBERRIES, and have been surprised not to see among the varieties recommended any mention of *Le Sabreur*, which I have grown for three years past side by side with President, Sir Joseph Paxton, Dr. Hogg, and eight or ten other varieties, and it is with me the favourite. I received it with a strong recommendation from Mr. Lovel of Weavertorpe, York, and have found it a superior sort well worth cultivating. It is hardy, and has produced in each year an abundant crop of fine, rather large, handsome, conical fruit of good flavour and nearly of uniform size. It comes in with or just before Sir Joseph Paxton, and continues to bear throughout the season. A neighbour of mine who sells his surplus fruit, to whom I gave some plants two years since, is this year planting a new piece of ground principally with *Le Sabreur*, which he decidedly prefers.”

— AT the last meeting of the Royal Horticultural Society a first-class certificate was awarded for *CANNA IRIDIFLORA HYBRIDA* from the Chiswick Garden. It is a very handsome variety, with large rich crimson flowers; indeed, it is scarcely equalled by any other form of the genus in the peculiar depth of colour.

— A CORRESPONDENT of the American “Gardeners’ Magazine” gives the following notes upon *PORPHYROCOMA LANCEOLATA*—“This is an old hothouse plant of rare beauty, belonging to the natural order Acanthaceæ. It is a perennial hothouse plant, attaining a height of about a foot, with dark green opposite lanceolate leaves, the leaves being slender at the base, producing its flowers in terminal and axillary spikes. The flower

spikes are of a rich purple colour, and are deeply four-angled. The corolla protrudes far beyond the bracts, and thus gives the plant a rather singular and attractive appearance. It requires for its successful cultivation a compost of two-thirds turfy loam and one-third well-decayed manure and good drainage, a temperature of 55°, and during its season of growth a moist atmosphere and an abundance of water. Its period of growth is during the winter months, and the beautiful tufts of flowers are produced about the first week in February, and continue in perfection for two or three weeks. After the flowering season is over do not water so freely, and about the middle of May turn the plant out of its pot; reduce the ball of earth about one-half, and plant out into a partially shaded well-prepared border, from whence it should be taken up and potted about the middle of September. Propagation is readily effected by seeds, which are freely produced, and it could also be increased by cuttings. If the seeds are sown as soon as ripened in a pot or pan of well-drained light sandy soil, and the young plants liberally treated, fine flowering specimens will be obtained for another season.”

— A CORRESPONDENT of the *Mark Lane Express* writing from Christchurch, Hants, on Saturday, states that on the evening of the 6th he saw dug in an amateur’s garden a row or two of AMERICAN ROSE POTATOES. Their yield was the best known about the neighbourhood this year, there being on an average seven or eight to a root, and their size also being remarkable. Six Potatoes were taken from the crop and weighed, the largest weighing 1½ lb., and the six together weighing 4¾ lbs. These had grown well, the green tops having only just peeped out of ground, when that severe frost was on the 10th May, and were then not out enough to be injured.

— WE understand that the following additions have been made to the NATIONAL ROSE SOCIETY’S SCHEDULE for Manchester on the 24th inst. Class 5a (nurserymen), eighteen distinct single trusses, £1 10s., £1, and 10s. Class 13a (amateurs), nine trusses, £1 10s., £1, and 10s. To be grown within twenty miles of the Town Hall, Manchester.

— WE are informed that the WESTON-SUPER-MARE HORTICULTURAL EXHIBITION held last week was very successful, and as regards the number of exhibits it was the largest yet held by the Society. There were 165 exhibitors, and nearly two thousand collections staged, plants, fruit, and vegetables being all well represented. The Show was well attended by visitors.

CARNATIONS AND PICOTEEES.

AMATEURS or others who grow these will now find them in a suitable state for propagating by layers. For the past two or three years I have been late in having this very necessary work done owing to the lateness of the growth in the plants, and had to root many in a warm temperature during the winter months, but this year I shall have them well rooted by autumn. The finer kinds have been grown in pots for the last two or three years; but, although I obtain fine blooms in this way, it is not a system that will recommend itself to the majority of gardeners. This is the only way I have been successful with the finer Carnations and the charming Picotees. When grown in beds or borders they invariably wither and are dead before the middle of summer. As I expect to have extra strong plants this autumn, I will try some planted out to stand over the winter. Some surplus plants of *Souvenir de la Malmaison* treated in that way last autumn not only lived through the past winter but are now the healthiest examples of that variety I have.

The stronger-growing sorts of the above, with Clove Carnations and Anne Boleyn Pink, are occasionally left in the borders two seasons without being disturbed except by taking the strongest layers. I do not find them do well after the second year, though on stronger soils they may probably be left longer without loss. In preparing soil for layers I merely place some old Mushroom manure round the plants; this is worked in to the depth of 5 or 6 inches, and after being firmed the layers are pegged down. In preparing the layers a slit is made 1 to 1½ inch up the stem,

cutting under a leaf joint. None of the leaves are removed, as I find this unnecessary. The layers are then pegged firmly into the ground. Plants lifted and potted are given a rich compost to grow in. The soil is pressed in very firmly, and there is no danger of the plants making a quick tender growth, as they would do were the soil loose. Our plants are plunged amongst ashes in cold frames, and keep moist enough in this material through the winter without having to water them. About February they begin to require attention in the way of water, and have then a mass of feathery roots. In March they are either shifted into larger pots or planted out in beds or borders.

The most useful of all summer-flowering Carnations are doubtless those known as Cloves. Ours are of two kinds of white, a purplish crimson variety, and two dark crimsons, one with fimbriated petals, the other plain. Later, we have one of the finest of hardy flowers in the Duke of Wellington, a scarlet dwarf variety, and a most profuse bloomer. I believe there is a rose-coloured companion to this named Countess of Manvers, but I have not seen it. The large-flowering Souvenir de la Malmaison is a good border variety. I have also a pink variety which some like better than the cream-coloured sort, and there is also one with the pink and white in stripes on the same flower; it is named Lady Middleton, and is yet very scarce. I do not think it so good as either of the two first named varieties. Autumn-layered plants of these we find useful in $4\frac{1}{2}$ -inch pots in spring. They are kept growing gently through the winter. After flowering they are planted out and the young growths layered.—R. P. B.

HONG KONG.

HAVING in an Anglo-American tour spent some time at Hong Kong and found the Journal has penetrated even there, some notes, although not exclusively botanical or horticultural, may be acceptable for its pages. Even gardeners require a change of literary fare occasionally; and I will not therefore limit myself to the mere gardening aspects of this in many respects strange and interesting dependency of the British Crown, but will assume that the narration of what proved interesting to me may have at least a measure of interest to others.

At a time like the present, when there is such an outcry being raised against the imperialistic policy of the late administration, and a tendency to renounce all the so-called "white elephants" with which they are accused of having burdened the country, it will be encouraging for English people to know that there is at least one "white elephant" of the past which has really turned out a success and a credit to the nation. It is very remote, and still labours under the false imputation originally thrown upon it; but it is truly very beautiful and by no means fatally unhealthy; so I think I cannot do better than try to dissipate some of the ignorance that exists about it at home, and thus do justice to us and to the memory of those who are responsible for its acquisition.

Persons of middle age will probably remember that when they were in their teens there was a certain phrase borrowed from a song called "The Gay Cavalier" which was in almost everybody's mouth, and was used politely to intimate to another that you preferred his room to his company. In that song the heroine, annoyed at the persistence of an unwelcome suitor, and being denied the gratification of giving him his *congé* in language of masculine vehemence, contents herself with relegating him to Hong Kong, that being according to the notions of the time the nearest earthly equivalent of a place we all have heard about but never hope to see. "You may go-o, you may go-o, you may go to Hong Kong for me," was the euphemism to which I refer; and its discontinuance is, I believe, less due to a better knowledge of Hong Kong than to the decay of the political excitement which forced Hong Kong into notice, and to a belief that after all the good round Saxon terms are the best for securing the end desired by that periphrasis.

Hong Kong was the Cyprus of that period, and to judge from its rocky barren nature and limited extent must have seemed then a very much less promising place for a European colony than Cyprus does now. Accounts written thirty-five years ago describe it as looking gloomy, bare, desolate, and as being terribly unhealthy. These accounts, after making some allowance for the writer's bad spirits at finding himself in such then remote parts with a damp relaxing climate, were no doubt tolerably correct; but to one who now takes his stand by the City Hall at Hong Kong and looks around him they appear strangely like libels. The difference, however, between then and now is, I believe, a real one, and it must be as thorough a transformation as if an enchanter's wand had been waved over the quondam pirate's lair, over the discoloured unsightly excavations, the scattered timbers, and the tiny tents at the foot of those bleak hills round which in 1844 a

few men of war and merchantmen were watching. The magic power which has effected the transmutation is that same Anglo-Saxon energy which during the same period has built up Melbourne and San Francisco, assisted by an unlimited amount of Chinese labour. For the number and nature of its population Hong Kong is inferior to its two contemporaries; but in solidity of construction, in the perfection of its finish, and in the precipitous beauty of its site it is superior. Probably for Europeans it will never possess the same interest that these other towns do, as it lies in tropical climes and is mainly inhabited by that race which inclines least to the Caucasian. Possibly it will be quite outstripped by its contemporaries, but the beauties of its situation and construction will always be undeniable, and the consideration of its rise astonishing among the many marvels of a wondrous age.

Hong Kong, the island of "Fragrant Streams," or, as some will have it, "Good Harbour," was ceded by China to the British Government after the opium war in 1841 to serve as a vantage point from which to invade the Celestial Empire with our goods, and, if any protection were necessary for these, with our arms as well. Seventeen years later, when Sir John Bowring picked a quarrel with Governor Yeh, it served for this latter purpose; and afterwards in 1861, at a general patching-up of old sores, in consideration of China consenting to renew amicable relations with us, we took as an earnest of its sincerity the small peninsula of Kowloon facing Hong Kong from the mainland. Tennyson sings, "Saxon, and Norman, and Dane are we;" and our dealings with China show that if we still possess the stubbornness of our Saxon and the fierce enterprise of our Danish ancestors, the strain of Norman blood in our veins has lost none of its spirit of high-handedness by transmission through thirty generations. However, if our action has not been unimpeachable, it may be fairly urged that it has redounded even more to the advantage of the people who resisted us than it has even to ourselves. At the time we took it Hong Kong was a perfect Alsatia, round which all the disreputable and restless spirits of the neighbourhood used to lurk and make piratical descents upon the Chinese and European shipping far and near. Now it is a magnificent emporium, almost entirely inhabited and kept going by the Chinese themselves, but governed and garrisoned by the irresistible naval power of England, which is the terror and repressor of evildoers along the whole length of the Chinese coast.

In its reputation Hong Kong has suffered a peculiar fate. Before it was reclaimed—when it was unkempt, undrained, and uninviting—it was thrown to the attention of an excited English public, distracted with the vague romantic hallucinations provoked by the opening-up of the Flowery Land, and intoxicated with expectations which were never destined to be realised. The report went abroad that Hong Kong was a deadly pestilential place, and insurance offices forthwith put up their premiums on the lives of those unfortunates ordered thither, and perplexed uncles hastened to apprise shiftless nephews of the golden opportunities which the newly opened region afforded to young men of energy and enterprise. Now, when it is magnificent, a model of finish and cleanliness, and not less unhealthy than Manchester, the English public know of it only as a detestable place, at the very name of which their parents and grand-parents used to shudder.

The mortality which originally gave Hong Kong such a bad name arose, as in the case of Cyprus lately, among the naval and military forces hurried in to take possession of it. Soldiers and sailors were in those days the most heedless and ignorant of men, and what the soldiers and sailors were in ordinary affairs their officers were in sanitary matters. They did not reflect as to the safety of disembarking their men upon a strip of steamy soil soddened with the water of the numerous streams tumbling down from the overhanging hills; still less did it occur to them that the soil, like other soils in hot climates, when broken up everywhere for building purposes might become ten times more deadly and malarious in its effects. Such, however, was, and is even now, the tendency of newly-disturbed soil in Hong Kong, and this, combined with the reckless habits of the troops and tars, caused the decimation of whole regiments and ship's companies; consequently many valuable lives were sacrificed, as the obelisks in the cemeteries still show, and Hong Kong acquired a reputation for unhealthiness which it is far from deserving.

The island is about the size of Jersey—eleven miles in length by from two to five in breadth, and some twenty-seven in circumference. It is as rugged as many of the western isles of Scotland, which it somewhat resembles, and is composed entirely of igneous rocks—viz., granite, felspar, and a very little trachyte. In shape it is not so very unlike the model of a gouty foot viewed laterally, with the instep swollen and knotty, and a cleft extending from the direction of the shank-bone towards the heel. It lies with its

toe towards the west, its heel towards the east, its sole turned towards the Chinese mainland on the north, and its upper side facing out south to the broad ocean. All around it seawards are rocky uninhabited islets, which interrupt in the most pleasing manner the wide surface of the water, and in sunny weather offer in their dark green hue a charming foil to the expanse of rippling blue by which they are surrounded. From the mainland towards the island extends for some two miles the peninsula of British Kowloon, so as to come within ten minutes' ferrying distance of the town of Victoria. This peninsula forms a very pleasant suburban resort, from which the best view is obtained of

the white handsome frontage of the town nestling beneath and embracing the base of the great sombre green peak and its prolongations.

The hills of the island and those of the mainland run abreast of each other in slightly converging lines at a distance of some eight miles, rising to heights of from 600 to 1800 feet, and forming a sort of amphitheatre, within which stretches the strait or harbour for a distance of nine miles, seeming from the centre to be quite land-locked, and amply protected from almost every wind that blows. So short is the distance from highland to highland across the strait, so ample and placid the water-way, and so numerous

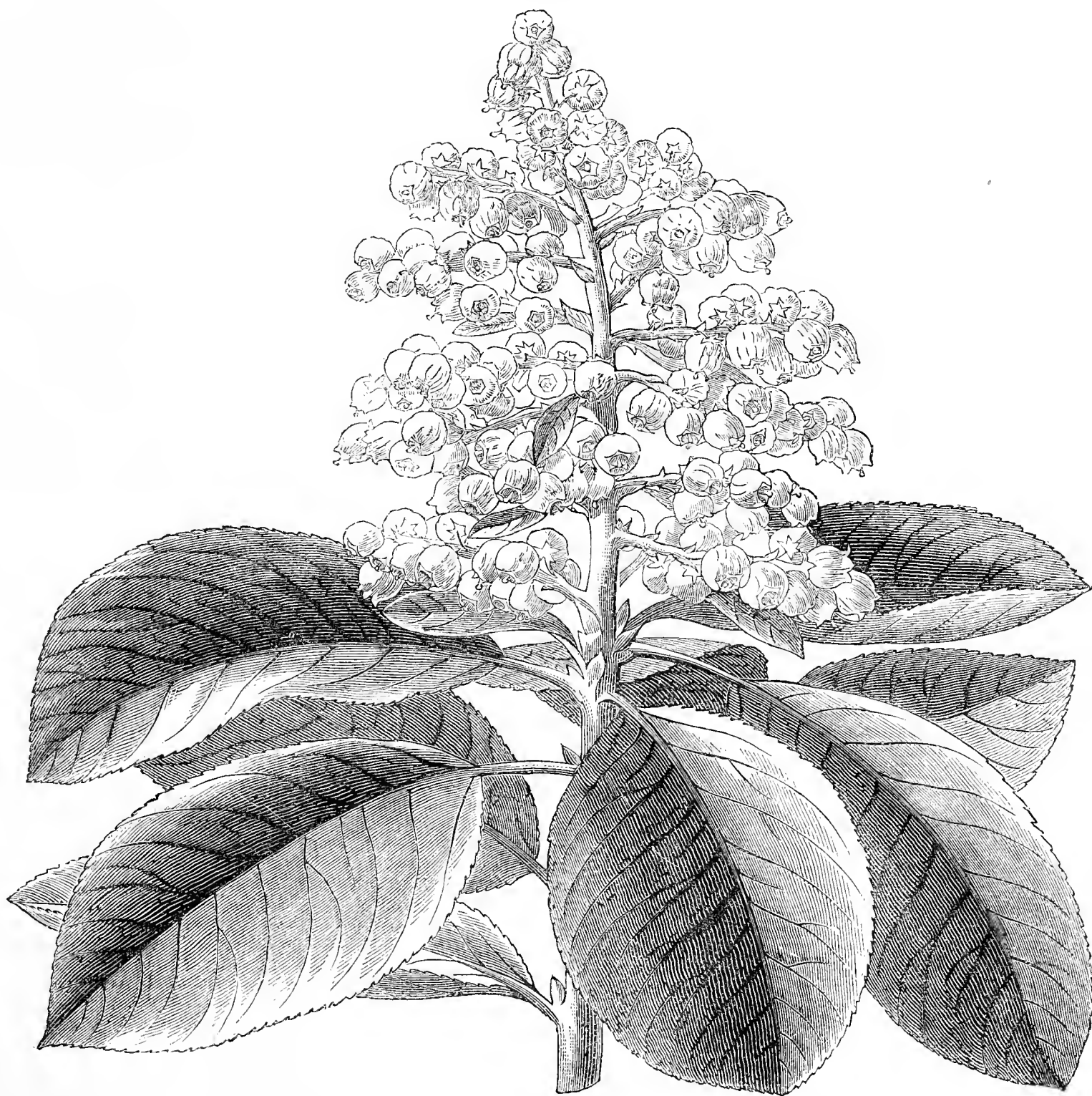


Fig. 27.—ARBUTUS ANDRACHNE.

the points from which a bird's-eye view of the surroundings for twenty miles can be obtained, that Hong Kong might be aptly designated the "naval colosseum" of the power which possesses it. All the navies of Europe could find convenient anchorage in its harbour, while nowhere as in its neighbourhood could a naval review be more successfully planned and viewed, and more imposingly carried out.—A WANDERER.

(To be continued.)

ARBUTUS ANDRACHNE.

THOUGH one of the old inhabitants of British gardens the

oriental Strawberry Tree is yet an ornament of no mean value in shrubberies, and is certainly far from being too common. In many establishments where such old favourites are treasured specimens may be found sometimes of considerable size, but comparatively few modern gardens contain examples of it.

Arbutus Andrachne is an evergreen, and occasionally attains the height of 30 feet, though specimens varying between 12 and 20 feet are much more frequently seen than those of the extreme dimension given above. The leaves are oblong or oval in form, smooth and slightly notched at the margin; they are also thick and leathery in substance. The flowers are similar in form to those of other *Arbutus*es—namely, what is botanically termed

urceolate; they are white sometimes with a greenish tinge, and are borne in terminal erect panicles. The fruit bears some resemblance to that of the well-known Strawberry Tree, *Arbutus Unedo*, but is not frequently matured in England. One peculiarity of the tree is the reddish colour of the bark in winter, the outer layer separating from the other portion in spring, falling off as in the Plane, though not under precisely the same conditions.

A moderately sheltered position is best suited for this species, as when much exposed, if not positively injured the foliage often assumes a brown appearance that is far from satisfactory.

RHUBARB—A HINT TO AMATEURS AND COTTAGERS.

LAST spring at the beginning of April I sowed six-pennyworth of Rhubarb seed in a bed on a warm border facing the south. As soon as the seedlings were large enough to handle I transplanted them temporarily into another quarter of the garden, which had been previously manured and dug, in rows 2 feet apart and 2 feet between the plants in the row. The result now is (August 12th) that I have two hundred strong plants, many having from six to ten sticks on, some of them measuring 18 inches long and half as thick as a man's wrist, and this in four months from time of sowing.

Many people are under the impression that Rhubarb can only be increased in the usual way by division of the roots. Let me advise all who may read this, and who have not a good stock of this useful plant, to procure a packet of seed of each of the early and late sort and sow them at once in a warm corner of their garden, leaving the young plants in the bed until spring, when they should be taken up as soon as growth commences and planted in well-manured soil, where they are intended to permanently remain. By sowing now instead of in spring you steal a march on time, and your plants will be much stronger and better.—D. THOMAS.

FAIRY ROSE THE PET.

THIS is a charming Rose with its small lovely white flowers, which are produced in a large truss on the top of each shoot. Its habit is dwarf, and, best of all, it is a most continuous bloomer. This miniature Rose cannot fail to become a general favourite with ladies, and gardeners too who do not ignore and condemn all that are not suitable for exhibition. I do not doubt when once grown it will soon become highly appreciated and popular. For room decoration in small vases it is a great acquisition, and the most suitable Rose for that purpose I have yet seen. Capital plants can be grown in 4 or 5-inch pots; in fact it would almost be lost in a much larger size. Its shoots do not extend more than from 7 to 9 inches before they flower. It grows freely and does well treated in every respect similar to other Roses in pots, but should have a little more leaf soil in the compost than is necessary for Hybrid Perpetuals. Cuttings strike readily, and no better system can be adopted than that recommended by Mr. Wm. Taylor in this Journal. It also appears to do well when grafted on the seedling Briar.—ROSE-GROWER.

SINGLE v. DOUBLE FLOWERS.

WHEN I wrote the paper bearing on the subject named above, I had a definite object in view; but I fear I have failed to convey my meaning. I have never said, and yet every one of my critics infers, that I hate double or cultivated flowers. I never yet proposed the banishment of a single garden flower; yet Mr. Shirley Hibberd in his lecture on the Carnation goes out of his way to say that it has been proposed to abolish them all. It is certain, either that that gentleman has not read my paper or has done me injustice in misrepresenting me. Others have honestly differed from me, or rather from what they have fancied my ideas to be. Indeed, I do not know but that some of them are prepared to go further than I am.

The idea that I have condemned double flowers *in toto* is a mistaken one. I have said, and I hold, that single flowers are, as a whole, more beautiful than double ones. Those who have joined issue with me have admitted that certain double forms are not so beautiful as the single kinds. For instance, there is a wonderful unanimity of opinion about *Petunias* and *Fuchsias*, and that opinion is that the singles are best. It is the same with *Pyrethrums* and *Campanulas*. Indeed the kinds which the champions of double flowers declare to be better than single flowers are comparatively few, while there are hosts of generally admired single flowers. This is exactly my position, and it is, after all, theirs; for our differing is much more seeming than real.

I treated the matter generally, as was only possible in one or two short papers. There are few rules without exception, and I never

for a moment intended that my rule should be considered absolute. I never did consider single Stocks equal to double ones, nor the finer forms of double Camellias to be inferior to single. I protested against the undue exaltation of double flowers, but at the same time cultivate and admire double flowers as well as single. I said that double Hellyhocks were neither so effective nor so beautiful as Foxgloves; and it seems that I have been understood to say that double Hellyhocks are neither beautiful nor effective! And so on.

But Mr. Brotherston puts some questions which had better, perhaps, be answered. Speaking of Hellyhocks, he uses the following words—"Why should we examine everything closely?" The answer is that beautiful, really beautiful, flowers must be examined closely in order to realise how beautiful they are; and when such a question is asked, the interrogator himself has no great admiration for his favourites. Again, "Though Hellyhocks are not particularly beautiful under close inspection, then 'let distance lend enchantment to the view.'" Mr. Brotherston's defence of double Hellyhocks is such as might be made of a flower garden, the beds of which were filled with paper Roses and milliner-made foliage. If any fault could be found of such a flower garden on close inspection, why, "let distance lend enchantment to the view!"

Mr. Brotherston asks if I would expel "Mule Pinks, double Pinks, laced Pinks, Picotees, Clove Carnations, and florists' Carnations from gardens." No. There are not many flowers that I would expel from gardens, and those named are among my special favourites. Then he gives another list of double flowers, and asks if I would place the double forms in the background and substitute the single forms. As far as regards double *Primulas* and *Azaleas* I certainly would place them in the background, for they are, I think, inferior to the single forms.

In the last paragraph but one of your correspondent's communication he criticises the bouquet, the composition of which lately formed the burden of a few remarks. In that paper I endeavoured to show that a charming bouquet might be culled from any hedge-side, and because your correspondent can produce a better by searching the whole world over for flowers to compose one, he imagines he has made out a case against me. He thinks the substitution of "cultivated" flowers for "wild" ones has proved wildings to be worthless. It is not often a critic so effectually defeats himself as Mr. Brotherston has done in this case, for he has triumphantly proved exactly the opposite of what he intended. What is a cultivated and what a wild flower? Is an unaltered wild flower less a wild flower because it grows in a pot or under artificial conditions? If so, then the mere fact that most wild flowers have been cultivated some time or other, places even them under the category of "cultivated" plants. But all will agree with me that all flowers that are in the state that Nature presented them, and are unaltered from Nature, are wild flowers. Certainly *Eucharis* is better than *Horsegowan*, and *Pancratium* than *Woodruff*, *Odontoglossum* better than *Gueldres Rose*, *Epidendrum vitellinum* better than *Dandelion*, and *Aquilegia chrysantha* better than the little *Lotus* or *Lady's Bedstraw*, but all are alike wild flowers, with this difference—the whole world has been ransacked to furnish the one, a few square yards of a hedgeside have furnished the other. Before *Eucharis* can be enjoyed stoves have to be built, and Orchid houses to grow *Odontoglossum*, to say nothing of the collectors needed to obtain the plants, the ships to convey them home, and the expense necessary for their cultivation. The others may be had for the collecting at the side of any country road in summer-time, and they are not so very much less beautiful; perhaps what they want in colouring may be made up in gracefulness, and that to a cultivated taste is even better than mere gaudiness, though we do not mean our readers to understand that we regard the Orchids named as gaudy, or the others either. I grow most of the plants named by Mr. Brotherston, and am critical enough to select forms of *Odontoglossum* possibly on the same lines as he would. I do not regard all wild flowers equal, as, I am assured, he will not regard all cultivated ones; but, when I escape to the glens and the hillsides I never fail to experience a pleasure ever fresh, though I also take great delight in our cultivated plants. My object has all along been to direct attention to the wealth of beauty which is "born to blush unseen, and waste its sweetness on the desert air." Far be it from me to limit the improvement of flowers, and farther still to throw cold water on the cultivation of the many gems, brought from far, at how much cost! My observations have been misunderstood; but if I succeed in showing to even a few how they without gardeners, hothouses, gardens even, may nevertheless indulge their love for flowers, my purpose will be served.—SINGLE-HANDED.

ROSES FROM CUTTINGS.—Having taken some Rose cuttings according to the directions given in the first article of July 21st

in the Journal by Mr. Wm. Taylor—will he kindly say what next should be done? Having no glass save a small cold frame, I desire to know if the cuttings should remain in the box where they are and the glass be lifted, or should they be planted in a border or placed in pots?—L. T., *Putney*.

CHAPTERS ON INSECTS FOR GARDENERS.—No. 27. NEW SERIES.

It is not, perhaps, easy to persuade the individual who, having taken a bite out of a juicy Peach, perceives in the portion which he holds in his hand the wriggling half of a centipede, and is therefore forced to the conclusion that the other half of the said creature is in his own mouth, that something may be said in favour of centipedes and millipedes. The gardener certainly has many worse enemies if he has also more important friends amongst the insect tribes. The fact is that this group is simply divisible into two sections, each having special habits, the insects of the one being generally harmful in our gardens, those of the other are mostly harmless or actually beneficial. An estimate of the two, in so far as we can make it, would lead us to think well of the myriapods as a whole, but as yet the habits of some of the species are very little known. All our native species are small compared to the bulky and formidable centipedes or millipedes of hotter countries, a bite from which has proved as troublesome as one from a snake or a scorpion.

The myriapods are readily distinguishable from the majority of insects by the absence of any evident separation of the body into thorax and abdomen, and by their possession of a large and variable number of legs, though "hundred legs" is an exaggeration, and "thousand legs" also—appellations sometimes given to the two groups referred to, because one has usually a pair of legs to each segment of the body, and the other two pairs. Of course the segments are numerous, giving much flexibility to the body. The mouth resembles that of biting insects, having mandibles, and an upper and lower lip. There are no distinct transformations, but juvenile myriapods have fewer feet and segments.

The Julidæ or "Thousand-legs" have mandibles and jaws suited to the ordinary operations of biting; and so far as we have ascertained these species feed chiefly upon vegetable substances. The short and plump *Glomeris marginata*, commonly called the Pill Millipede, is exceedingly like a woodlouse, and it rolls up in the style of that crustacean, though it may be readily distinguished by its appearance when crawling. When a woodlouse is moving along the feet are seen to project beyond the sides of the body; in the millipede they are hidden from view. Probably this insect lives by preference on decaying roots or bulbs, but is not restricted to them, and it has been suspected of doing damage in Orchid houses. It is not, however, so frequently noticed as are the snake-like species of the genus *Julus*, not literally thousand-legged, if possessing in several instances one or two hundred, possibly more. These have often been discovered in the act of eating small insects and molluscs; thus far they are of use, but much more frequently there has been found unpleasant proof of the injury they do to growing plants, especially to the delicate fibrils of herbaceous species. They will also bore deeply into bulbs, necessarily destroying the plants, liliaceous species being much infested by them in some seasons. Traps, such as scooped-out Potatoes and Apples, placed in suitable spots have been tried with some success under glass structures; in the open ground soot and lime water not so successfully, their vitality defying these and similar applications, while more powerful ones kill probably the plants and insects together.

Julus pulehellus was, it may be, so named because it is a pretty object under the microscope, being delicately formed, having the pale surface of the body marked with crimson spots. To the horticulturist it has no attractions, since it appears to be the most troublesome of the genus, though almost the smallest species in it. Not only does this millipede attack various garden or greenhouse flowers, it has been discovered by Curtis and others in the act of perforating the roots of Cabbages and Beans. The next species is considerably larger—*J. terrestris*, about an inch in length, and with similar habits; it occurs amongst decaying vegetable substances very often, but does not limit itself to these. As a root-eater it is apt to escape notice, for it will go down to some depth. *J. londinensis* is not so common; this is supposed to have a preference for the roots of Wheat. There are other species of the genus varying in size that are seldom met with in gardens. Sir John Lubbock has described, with a friendly appreciation of its services, a small millipede he calls *Pauropus Huxleyi*, which occurs amongst dead leaves and similar accumulations of vegetable matter, which this creature busies itself to disintegrate, and it seems to be in a condition of activity all through the year. He

states that it is "a bustling, neat, and cleanly little insect, with a look of cheerful intelligence, which forms a great contrast to the dull stupidity of the Julidæ and the melancholy ferocity of the Scolopendridæ."

The Scolopendridæ or centipedes have fewer legs, and mandibles peculiarly formed, having a point at the end of a hollow tube which communicates with a poison gland placed in the head. The presence of this apparatus is sufficient proof that these are intended to subsist upon living creatures; it is therefore to be concluded that, when centipedes are unearthed, even amongst plants which have been suffering from the visitation of some insect species, they are not the real offenders but have been preying upon them. A small Scolopendra having occurred in several instances amongst diseased Potatoes a few years ago, led Messrs. Curtis and Hope to assume that the species had to do with the mischief—an idea which the better knowledge we now have of the habits of centipedes leads us to set aside. But I am hardly prepared to admit that the centipedes which insinuate themselves so dexterously into our wall fruit have only done so with the laudable object of killing other and smaller insects that have previously made entry. The attitude of a centipede curled round the stone of an Apricot, Peach, or Plum certainly implies an appreciation of the sweet fluid by which it is surrounded; and though many centipedes may be found in partially damaged fruit that has the marks of other insects, centipedes also appear in sound fruit—sound until they had worked their way in, which they usually do



Fig. 28.—*Julus terrestris*.

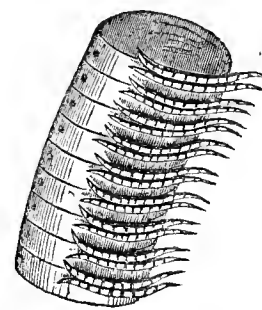


Fig. 29.—Section of body.

close to the stalk. The majority of our native species have no eyes, therefore the sense of touch must be very acute, or some sense that we are unacquainted with. Female centipedes have been observed in the act of watching over their brood of eggs; these are placed in a small cell underground. *Geophilus longicornis*, the largest British species, is the one that most frequently visits fruit, I fancy; it is very slender, and pale yellow in colour or whitish. The name of the "electric centipede" has been bestowed upon *G. subterraneus*, from its property of emitting a phosphoric light in spring and autumn. This was at first supposed to have been caused by the insects having been in contact with some decaying substance that was phosphorescent, but it is evidently inherent, like the light of the glow-worm. Moreover, in crawling, this centipede when thus endowed leaves a shiny track in its path for a foot distance or more. This species undoubtedly destroys slugs, small worms, and insects above or below ground, as do its brethren in the genus, probably killing more than they devour. *Lithobius forficatus* is a stouter centipede, about an inch long, common in gardens and also predatory.—J. R. S. C.

ROSE MADAME PLANTIER.

THE Hybrid China Roses are principally employed for covering walls and training to poles for pillar Roses, and for this purpose are best known amongst cultivators. Seldom are these Roses seen grown in pots, and their value for this purpose is not known to the majority. Where Roses in pots have to be forced Madame Plantier should have a place and be largely grown. Its flowers are small but pure white, and are produced in clusters at the end of the young shoots. The flowers of this variety are admirably adapted for bouquet-making or for buttonholes, also for vases in rooms. It can be readily forced, and nearly every slender shoot produces a fine truss of flowers. I have not tried it on its own roots yet, but no doubt it would do well. It, however, flourishes on the Manetti and seedling Briar. When on the Manetti the stock must be buried beneath the soil in the pots, as if exposed the stocks will not last long. When trained to a pole or against a wall little pruning is necessary, only removing the weak growths and slightly shortening the strong ones; but when grown in pots a different system of pruning must be followed. The shoots

must be well cut back to one or two eyes, much the same as when growing Hybrid Perpetuals. It then flowers on shoots varying from 1 foot to 18 inches in length. Well-furnished little specimens can be grown in 6, 7, and 8-inch pots.—W. B.

MANCHESTER FRUIT AND VEGETABLE MARKETS.

[A SOMERSETSHIRE correspondent requests that we publish the following concluding portion of a paper that was communicated to the "Royal Agricultural Society's Journal," previous extracts from which we published last year.]

THERE are yet growers bringing their goods to the Manchester market who can remember the time when they had no foreign fruit to compete with. Oranges, Lemons, and the dried fruits of the "sunny south" were merchandise that never excited their jealousy; but it would be difficult to say in these days what kind of fruit is not imported and pitched in our markets alongside and in competition with the home grower. If we had to depend solely upon the British grower now, however, I fear fruit would be a luxury out of the reach of the working class of the community. Up to the 16th of August, 1838, the duty on imported Apples was 4s. per bushel, and in that year but 20,502 bushels were imported. The duty was then reduced to £5 per cent. *ad valorem*, and the very next year 120,000 bushels were imported into the port of London alone, and the average price they were sold at was 4s. 9d. per bushel. The importation of Apples went on steadily increasing up to the year 1846, when it received a great impetus by the total abolition of the duty. Yet the price of good Apples is higher now than when the maximum duty was exacted. I learn from evidence given before a Select Committee of the House of Commons which sat in 1839, "to inquire in the Fresh Fruit Trade," that the reduction of the duty had driven the Kentish growers to despair, and that they talked of grubbing up their orchards. That did not take place, however, to any great extent; but where Apple trees were removed Cobnut trees and Raspberry canes were put in their place, and both these pay much better than common Apples. Home-grown fruit has, and must always have, a great advantage over the imported by being delivered in our markets fresher and in a generally better condition. It is the better sorts of Apples that are imported, such as the French "Royal Russet," and the incomparable "Newtown Pippin" from America, that the English grower has most to fear from. Five other sorts of Apples, beside the "Newtown Pippin" and "Ribston Pippin," are now sent from America, some only fit for culinary purposes, and all far inferior to the Pippins named. The cost of bringing them from New York to Liverpool last season was 2s. 3d. per barrel, weighing upon the average 1 cwt. 1 qr. nett, and 10d. from Liverpool to the Manchester market. In 1877 there was shipped from the United States to this country 336,565 bushels of Apples, and from Canada 44,295 bushels. I cannot give last year's importation, but I know it was much in excess of 1877.

This market also receives large quantities of Apples from Belgium, in casks which contain about 4 cwt., and last year they were brought from Antwerp to Goole for 9d. per cask; conveying them from Goole to Manchester cost 15s. 10d. per ton. Probably the growers of the common sorts of culinary Apples in Lancashire and Cheshire would find their account in superseding them with Raspberries, which always command a good price, and which will never be subject to the competition of foreigners, owing, from their soft nature, to the difficulty of transit.

Excellent Pears are imported from France and Jersey.

French-grown Strawberries now reach our markets before the English are ready; they are shipped from Brest in small boxes. About 7000 per week came to Manchester for three weeks this year. They are followed by large supplies from Cornwall, Worcestershire, Kent, and Cheshire, in the order named, and lastly from Scotland. Upwards of 3000 packages of this fruit were disposed of by one salesman one day this year, the cost of carriage by railway for which was between £60 and £70.

The first Cherries also came from France. It takes three days from their starting to their delivery here, consequently considerable loss is occasionally experienced from their changed condition. Ripe fruit put on the railway at mid-day in Cornwall is delivered here early next morning. Put upon the railway in Kent or Worcestershire at five o'clock in the evening, it reaches Manchester by three on the following morning. This is a splendid service, and leaves nothing to be desired. When we consider that these fruits are gathered one day and sold over the retail counter to consumers before the ordinary dinner-time on the next, 250 miles away, it must be allowed that the acme of accommodation has been reached. It takes a longer time for carts to

reach the market from the distant parts of the adjoining county of Chester.

Vast quantities of Currants are sent here from Kent; 20 tons have been sold in one hand in one day. Gooseberries are received from Worcestershire, Cambridgeshire, Cheshire, and the north-west of Lancashire. From the first and last named places they are not marketed until ripe; from the other two they are stripped from the trees in a green and hard state, and come to market in sacks like grain. The neighbourhood of Preston, in this county, is celebrated for the excellence of its Gooseberries.

The trade in German Bilberries is an important one. About 10,000 baskets of 12 lbs. each per week are received here during the season; they are sold at from 1s. to 3s. per basket, and cost 10d. each carriage. Many are sent also in small kegs from the banks of the Rhine, and the cost of conveyance is 4d. each. The very best Bilberries, however, are gathered on the Welsh hills; they are much superior in flavour, and reach the market fresh and in blooming condition. From Germany come large importations of Plums also, "Violets" and "Winesours," the latter in great abundance; they are a well-flavoured Plum, and their German name is "Zwetchen;" rate of carriage, £4 per ton. From the north of France come "Violets," "Black Orleans," and "Green-gages;" rate, £6 per ton.

The greatest number of baskets of fruit pitched in the Manchester market in one week, from 1870 to 1879 inclusive, has been as follows:—

1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.
68,000	72,000	51,100	82,700	73,500	86,250	81,450	77,200	102,250	90,000

To enter into further details, and refer separately to all the other kinds of fruit which are covered by these figures, would require more space and time than it would be desirable to occupy, and as I have mentioned all the principal sorts there seems to be no necessity for doing so.

Whether the promoters of this inquiry will consider that the writer has sufficiently obeyed their instructions in other respects he can only conjecture. "The sources of supply" are pretty fully indicated; it is absolutely impossible to obtain with any degree of accuracy "the average quantities that arrive by road and railway;" and as for "the advantages and disadvantages of the local grower from climate and seasons," I feel that it is too obvious that the former are far outweighed by the latter. That the local grower has some advantage over the distant as regards transit it cannot be denied, but even this is somewhat modified by the low rates charged for carrying foreign produce by the railway. I think that an examination of the figures I have quoted upon that subject will show that there was some ground for its being recently stated in both Houses of Parliament that the importer was more favoured in this respect than the home producer. As regards the market tolls, they apparently are on an equality; but, in fact, inasmuch as all foreign produce is packed in much smaller parcels than the home grown, the toll on the foreign is more than double that on the home-grown. A hamper of fruit as packed by the home-grower, and for which a toll of one penny is charged, will contain six times the quantity as packed in small baskets by the foreigner, which are charged one halfpenny each.

It will be seen that I have spoken of but one Manchester Fruit and Vegetable Market, and for the simple reason that it has but one that need be referred to for the objects of this paper.

There is still a Market upon the ancient site opposite the Exchange, which gave the name to "Market Stead Lane," now Market Street. In the spring, and through the summer, the old "Stead" is full of flowers, plants, shrubs, and trees; it is very picturesque, and strikes the eye like an oasis in the brick-and-mortar and sooty desert. There were formerly several retail markets scattered over the town; but their usefulness having departed, they themselves no longer exist.

The time is not far distant when retail markets will everywhere become things of the past—and why should it not be so? The system so long in vogue in London of the housekeeper being supplied by the "coster" is rapidly spreading in the provincial towns, and shops are now opened in almost every street for the sale of fruit and vegetables. That this must be far more economical than the retail market system can be easily shown. The market, for the sake of convenience, must occupy a central situation, and in such situations land in large towns has become valuable, and necessitates the payment of a heavy rent from the stall-keepers, and this, of course, falls upon the customer. And it does not require a large amount of perspicacity to see that it must be infinitely less costly for one dealer to convey goods to a hundred consumers than for a hundred customers to resort to a distant market for the supply of their daily wants. But these arguments tell in the opposite direction as regards a wholesale

market. There must be a great central depôt to which the retailers of the surrounding districts can repair in full confidence of procuring all they may require to satisfy the demands of their customers, and such a place is that which I have herein attempted to describe—"The Fruit and Vegetable Market at Manchester."



HARDY FRUIT GARDEN.

WHEN the Raspberries have all been gathered the old bearing wood should at once be cut out, and the young canes thinned to four or six of the strongest and best situated to each stool, securing them loosely to stakes until the growth is quite finished and the wood ripened. There must not be any further delay in netting Morello Cherries or Red and White Currants, which if against a north wall will keep much longer than in the open, and even improve in quality, whilst those in the open will deteriorate in quality. Red Warrington and other late Gooseberries should also be netted, but they do not keep very long without losing flavour. Hexagon netting is the most suitable material, as it excludes wasps and bluebottle flies as well as birds, at the same time admitting air. Apples of the early kinds should be gathered as they become ripe, or rather before they are dead ripe, or most early dessert kinds will be mealy, juiceless, and without flavour. The crop of this useful fruit is in most places abundant. Early Pears also should be gathered before they are quite ripe, or they are liable to become similarly deteriorated in quality. Apriots, early Peaches, Nectarines, Pears, and Plums ripening on trees against walls will require daily attention, the fruit when ripe being detached by gently raising or moving it, handling each carefully, as any injury will result in the speedy decay of the fruit. Prepare ground for fresh plantations of Strawberries, the present being a good time to plant. Select deep rich soil if possible, and an open situation. It is advisable, however, to plant a few of an early sort and some of a late kind on a north border to insure as prolonged a succession as possible. Let the ground be heavily manured and deeply trenched, as the Strawberry, being a deep-rooting plant, withstands drought much better than when the soil is shallow or not deeply stirred. It is not, however, advisable to bring up much bad soil, as that would only cause the plants to make very indifferent progress. The plants, which should have been well established in 3-inch pots, may be planted in rows 2 feet 6 inches asunder, and 2 feet apart, allowing such varieties as President 6 inches more space each way. If a full crop be desired the first season the plants may be put out at half the distance in the rows, every alternate plant being removed as soon as the fruit is gathered. The following varieties afford a good succession—Pioneer, Keens' Seedling, President, Lucas, Dr. Hogg, Unser Fritz, and Loxford Hall Seedling, a grand late sort. In light soils we find Pioneer, Sir Harry, and President succeed better than most others.

FRUIT HOUSES.

Figs.—The second crop will soon be removed from early-forced trees, and when this is the case attention must be directed to the proper ripening of the growths, for unless those are well matured success will be doubtful, especially as regards early-forced trees. Attention having been given as indicated in former calendars to thinning and regulating the growths, little will be required now beyond regulating the supply of water and the ventilation. The crop having been removed and the growth completed the trees will not require so much water, yet sufficient must be given to keep the borders moist, discontinuing syringing, or only resorting to it occasionally to eradicate red spider. The ventilation must be attended to as before, a free circulation of warm dry air being maintained until the foliage commences falling, when a colder atmosphere, but well ventilated, will be suitable. Trees that are crowded with wood from inattention to thinning must at once have the shoots thinned to insure the maturation of those retained. Trees that ripened a crop in June will now

be perfecting another, and may be encouraged with liberal supplies of water or liquid manure, and as the ripening of this crop will extend over a considerable time a circulation of warm dry air must be afforded to obtain the fruit in good condition. Trees in pots are not so vigorous as those planted out, and ripening the growths more freely will be benefited by exposure outside after the crop is gathered and the growth matured, but on no account must they be exposed if there is any doubt respecting the maturation of the wood. They should be returned under cover before heavy rains and cold weather are experienced.

Peaches and Nectarines.—Some of the leaves of the trees in the earliest house are now changing colour and falling, and if any renovation of the border be deemed necessary it should be attended to. The surface soil may be removed down to the roots, being careful not to expose these very long. Lay them in carefully in fresh compost, and firm the whole well. If the wood is gross and does not ripen well the trees should be wholly or partially lifted, the house being shaded and kept rather close, the trees well syringed two or three times a day, and the operation performed with little delay. The drainage must be made as complete as possible, and when this is effected a layer of turves grass side downwards will prevent it becoming choked. About a foot depth of compost may be placed in and well rammed, and the roots spread out over it, cutting back any strong roots devoid of fibres. It is important that the soil be made quite firm. Strong fibrous loam taken off about 3 or 4 inches thick forms a suitable material without any admixture, especially if it has overlain limestone. Soil not of this description may have a tenth part of old mortar rubbish incorporated, with a fortieth part of half-inch bones, the soil (which must be strong, or if light have a third of clayey marl mixed with it) being no more than moderately moist when used. Give a soaking with water at a temperature of 90°, and mulch with 2 or 3 inches of short manure. Continue shading and damping the trees for a few days, and they will soon be established in the fresh material, when the shading must be removed and the house ventilated fully. Trees so treated invariably set their fruit well, and fine crops are obtained. To assist the ripening of the wood in succession houses the trees should have all the wood not necessary for next year's crop cut out, syringing the trees forcibly after the fruit is gathered to dislodge red spider, not allowing the borders on any account to become dry.

Pines.—In most instances the suckers produced by the early summer fruiters are now started, the treatment having been indicated in our last calendar under this head. Continue the treatment advised until growth is perceptible, when shading should be gradually discontinued, and the houses more freely ventilated on favourable occasions. Avoid crowding, allowing space for a sturdy growth, as weakly attenuated plants seldom produce fine fruit. When the weather is favourable to Pine Apple plants they will make luxuriant growth, and must be well attended to in ventilation; and in houses or pits, with the plants near the glass and the panes large, a slight shading for an hour or two at mid-day when the sun is powerful is very beneficial in May, June, and July; and where it has been continued up to this it should now be gradually withdrawn, providing free ventilation when the temperature stands at 85° to 95°, which is suitable alike for succession as fruiting plants, those having 70° to 75° at night, and the others 65° to 70°.

FLOWER GARDEN.

Endeavour to keep the flower garden gay and attractive as long as possible, being particular in removing every decaying leaf and flower as soon as perceived. Pelargoniums are especially liable to suffer when crowded; it is advisable to thin them and insert the cuttings. The plain-leaved varieties do well in a sunny position in the open ground, the soil being rendered firm, and by the end of September they will be ready for potting. Those grown for the beauty of their leaves should be placed in a frame where they can have protection from heavy rains, otherwise full exposure, and inserting the cuttings must not be longer delayed to have them well rooted before winter. Carpet beds well repay attention in keeping the lines and divisions well defined by pinching, indeed their effectiveness depends on their being well kept. Propagation must be proceeded with, but it is not

necessary to provide a large quantity of *Ageratums*, *Alternantheras*, *Alyssums*, *Mesembryanthemums*, *Lobelias*, *Petunias*, or *Verbenas*, nor of *Coleuses*, *Iresines*, &c., as these are best propagated in spring, so that a few pots or pans of these for stock are all that are required.

Roses promise to be abundant and fine this autumn, and the trees should be well syringed if dry weather prevail, also supplying liquid manure. If aphides attack them a prompt application of tobacco water will be needed, and if mildew appear dust whilst damp with sulphur and wash it off in a few days. Climbing Roses, such as *Maréchal Niel*, *Cloth of Gold*, and others, should have all the old flower-bearing wood cut out, and sufficient medium-size young shoots laid in to replace them for next season. All climbing Roses flower much better treated in this way than when spurred or pruned closely in, which only induces strong growth. *Phloxes* continue fine, especially where planted in deep moist rich soil, which with liberal watering induces large heads of bloom. Choice varieties may now be increased by cuttings or division, and the propagation of such *Primroses*, *Polyanthuses*, border *Auriculas*, *Daisies*, *Myosotises*, and *Gentians* may readily be effected in the same way.

PLANT HOUSES.

White Roman Hyacinth.—In order to have this useful plant in flower by early November the bulbs should be potted at once, three or four in a 5-inch pot, and five or seven in a 6-inch pan, leaving a space of about an inch between the bulbs. Employ good loam with a fourth of well-decayed manure or leaf soil and a little sand, firming the soil well around and over the bulbs, just leaving their necks clear. Stand the pots on ashes in a cold frame, and cover the pots with the same material. The lights need only be used for throwing off heavy rains. By the beginning of October the bulbs will be well rooted, and should be removed from the ashes and placed on shelves in a house with a temperature of 50° artificially, and when the spikes are appearing they may be further accelerated by placing them near the glass in a house where a temperature of 55° to 65° by artificial means is secured. Double Roman and Paper White *Narcissuses* require similar treatment, and are equally desirable where fragrant flowers are required for cutting or conservatory decoration.

THE BEE-KEEPER.

THE PHYSIOLOGY OF THE HONEY BEE NOT EXCEPTIONAL.

WE bee-keepers as we watch and study the little insect that has given to so many of us so much delight, are in no little danger of coming to believe that we are contemplating the very masterpiece of Nature, and that we have before us a concentration of wisdom and of wonder for which we should look elsewhere in vain. It has by example almost become a fashion to tell us, as a modern manual does in reference to the production of queens, that we have here a fact "which has no parallel in natural history," but a broader view will show that not only is this untrue, but that quite as surprising and unlooked-for methods of sexual differentiation not unfrequently occur. And should not the fact that the things which at first we think little we afterwards discover to be great, and that the more we study the more we find there is to learn, rather prove to us the unwisdom of supposing we had unfolded the greatest of all wonders, teaching us that as yet we only discern few marvels where there are many, and that did we know Nature as she is we should see neither less nor greater, but fulness of beauty everywhere, the exponent of a wisdom past finding out? Already, indeed, we get glimmerings that this will be the goal of science, for she has been lately opening up to us that not only have animals and plants their wonders, but that the very atoms of the universe are miracles of form and force alike.

It is now well known by all observant bee-keepers that the eggs which produce drones are unimpregnated, and in these days of the microscope an explanation of the manner in which this fact can be ocularly verified may be interesting to many of the readers of the *Journal of Horticulture*. I am induced to look at this matter in consequence of some remarks made by Mr. Pettigrew in drawing attention to the theories of Berlepsch and Dzierzon, which in their main lines are too well established to be questioned.

Although there are strong physiological grounds for supposing that the capacity for pain in insects is at most exceedingly small, I would be the last to suggest any experiment which could offend the sensibilities of any, and so state that our surplus queen to be examined is at once put to the quickest death—at which all sensibility must cease—by cutting off the head with a pair of fine scissors. The subsequent and unconscious movements of the legs and bending of the abdomen are but reflex, depending upon the nerve irritation which the section has promulgated along the nerve track, first to the large thoracic ganglia and then onwards to the extremities. We have previously prepared for the dissection now to be made thus: We take two very wide and shallow but perfectly similar pill boxes and place these and their lids, the latter removed, in a saucer in an oven along with some bee's wax in order that they may by soaking be waterproofed. We now fix one of the lids upside down upon a slip of thin wood or glass, 3 inches by 1 inch, to go upon the microscope stage, and similarly fix the other lid upon a piece of wood large and heavy enough to keep all steady as we work. Let the pill boxes be now filled with melted wax to within a good quarter of an inch of the top, and place one mouth upwards in the lid already fixed upon the heavy wood in order that our work may be firmly held when cemented upon the wax, which is now left to cool. The abdomen is next separated by scissors from the thorax. A piece of wire is made hot, and a little bed of wax in the centre of the box just referred to is by its means melted. Upon this the abdomen is placed back downwards, and the wire being reheated completes the operation of fixing, if necessary, by touching the points of contact between the wax and the abdominal plates. Of course the heat must be kept from the abdomen itself as much as possible. Water now is added to cover the abdomen, and we are ready for the operation. The scissors cut through the plates at the sides, and by degrees we tease them off with a pair of needles. We find at the part of the abdomen next the thorax two relatively large almost pear-shaped bodies, consisting of a multitude of parallel tubes (the ovarian tubes) in which the eggs are constantly undergoing maturation. These pear-shaped bodies (the ovaries) each end in a single tube, which by joining its fellow constitutes the oviduct, which opens outside the body just under, but as we have the abdomen inverted, over the sting. By the side of this oviduct and in contact with it is a small pearly white body about the size of a millet seed—the spermatheca, the contents of which can in minute quantities be discharged into the oviduct through a tiny channel (the sperm duct). This should now be separated carefully (those who use properly made dissecting instruments will have a great advantage) and placed upon a glass slip with a drop of water, a cover-glass is added, and it is examined by the microscope (of course every microscopist will understand that the live-box or compressorium will be best). If very slight pressure be put upon the glass cover a quarter-inch objective (even a good inch) will show countless myriads of spermatozoa issuing from the injured sperm duct and covering everywhere the field of view. They are all in rapid twisting dancing movement, and cannot be seen for the first time without exciting extreme astonishment. Each one in form can be compared to a minute eel with a disproportionately large head, while the tail (flagellum) lashes from side to side with extraordinary quickness.

These spermatozoa have been received by the queen from the drone, and during the whole of her life they are nourished and aerated, and maintain the vitality and power of movement which they originally possessed. These last statements admit of ready proof, for if a virgin queen be anatomised, as already explained, the spermatheca is found of small size, and but partially filled with a fluid which has no trace of structure. If, on the other hand, the drone be similarly treated the testes upon being crushed yield spermatozoa, the fac-similes of those found in the queen and in numbers which must reach millions. Let me remark in passing that it has been questioned whether drones, the produce of fertile workers, are virile, but there can scarcely be a reasonable doubt here. I have examined these frequently, and found spermatozoa in no distinguishably less numbers in their case than in normal drones.

If a virgin queen lays eggs they are of one kind, producing drones only, but a mated queen deposits eggs that may become drones or workers or queens. The reason is fully proved. The eggs to form drones are not brought into contact with the sperm duct. They have mothers but not fathers, and the creature resulting is said to be produced parthenogenetically (by or as by a virgin). There should be no difficulty in receiving this doctrine, of which examples in nature are even common, but of which we must speak more presently. The eggs destined to produce workers are, however, on the contrary, in the act of deposition brought into contact with the sperm duct, spermatozoa are then received, and

females fully or partially developed are the result. A microscopic examination of the egg shows that it has been formed for this method of impregnation. The whole surface is covered by a most beautifully reticulated membrane (chorion), the lines of which lead up in pattern towards the larger end of the egg, where they all terminate by joining a ring, reminding one of the cordage over a balloon which leads up to the string ring at the top. In the centre of this ring we find an aperture (micropyle) very minute, but passing through the egg coats and giving an opportunity of entrance to the spermatozoa, whose rhythmical movements, as though guided by intelligence, bring them to the micropyle, when they pass within, are absorbed into the germ, and effect the resulting sex as we have already seen. The question has been asked whether the queen is conscious of the sized cell in which she is laying and impregnates the egg or not accordingly. It is difficult to theorise here, but the cause is probably reflex in its character.

The fertile worker plays an important part in the normal state of many insects. Amongst bees she is a cause of ruin; but here she is of service, as she completes our argument. She is incapable of impregnation, but is capable of depositing eggs which produce drones only. Some three months since I attempted to make a swarm of the whole of the bees of a colony, in order that they might be sent to a distance. From a hundred to two hundred bees remained in the hive, which was returned to its old stand. Intending to give them a patch of hatching brood so soon as such was seen, I did not disturb them. In a few days, opening the hive, I found hundreds of eggs, ten or twelve in a cell, and covering a circle of about 3 inches in diameter. Amongst this little lot a fertile worker had appeared. But these things are not without their parallel. For instance, amongst wasps we find the counterpart to it all. The *Polistes gallica*, which builds its nest in bushes, is an interesting example. A mother or queen fertilised in the autumn passes into complete dormancy until aroused by the spring sun; she then with great industry builds a few cells, furnishes them with eggs, and feeds the resulting larvæ, all of which turn into females, but females which cannot be impregnated since males do not survive the winter. These virgins in turn add to the nest by ovipositing, and all their eggs produce males parthenogenetically, as in the case with the drone egg of the queen or fertile worker. Females of larger size than the rest produced by the mated mother late in the year, and probably differentiated by peculiar feeding as in the case of the queen bee, meet males of the same year; the former survive the winter, and so the race is continued.

It is curious to the naturalist that in other creatures this rule is sometimes reversed; for instance, in rotifers, females are generated by virgins, and males by mated individuals; and amongst moths there are known instances, of which space forbids particulars, of twenty generations of females succeeding each other without one male specimen having presented itself, or one case of impregnation having occurred. Indeed amongst some moths the male is at present altogether unknown, nor have we here at all exhausted our knowledge of these surprising variations, for amongst other similar cases *Cecidomyia* produces a larva which is itself fertile, not laying eggs but evolving living larvæ like to itself within its own body. This may remind us of the sexless budding-aphis passing through several generations until perfect sexual winged aphides are brought into existence, upon which seems to be laid the task of continuing the race to the succeeding year. Nor is this parthenogenesis amongst plants quite unknown. Dr. Asa Gray gives us as an example *Coelebogynae*, respecting which he adds, "Parthenogenesis is thus confirmed, and is shown to occur in most polyembryony."

So far my object has been to point out that in studying bees we have no monopoly either of the wondrous or beautiful, but that even the material works of the Creator are everywhere infinitely beyond us all.

In conclusion I must just mark one point in which I do not see with Mr. Pettigrew, if, indeed, I understand his meaning. The determination of the impregnated bee egg into a queen or worker is the result of treatment or feeding so far as we know; but he speaks of dwarfing the worker and interfering with its development. But this does not meet the case, since in some respects the worker is more highly developed and organised than the queen—*e.g.*, its tongue, its mandibles, its legs, the hind pair especially. It is rather a question of diversion of nutrition, but in what way this is brought about we know not. The organs of flight of the worker, again, are more perfect, as indeed they need be. The large air sacs, so important when distended for long flights, as decreasing the specific gravity of the body and bracing up its muscular attachments, and as increasing the possible aëration of the circulating fluids, give place in the queen to the ovaries, and so on throughout. It is neither a dwarfing nor a development

merely, but an adaptation most minute in its details. The worker for honey and pollen-gathering, wax-secreting and comb-building, nursing and cleaning, with every tool she can need; the queen for the duties of maternity, and for these alone, with generative organs fully equipped for the enormous work demanded of them, but that at the expense of all those parts which minister nothing to her proper functions.—FRANK R. CHESHIRE, *Avenue House, Acton, W.*

STRONG HIVES.

DURING the hot weather at the end of June and beginning of July bees in this neighbourhood gathered honey very fast from white Clover. For fifteen or sixteen days we had a great honey glut. The month of May this year was more favourable for honey-gathering than any corresponding month for some years past; but during the last three weeks or more the weather in this locality has been so unfavourable that breeding in most of the hives is discontinued. What with loss of brood and the great consumption of honey, hives are becoming much lighter in weight; and, as the Clover season is apparently over, those who do not take their bees to the moors should take at once what honey they want from their hives. The present is the best time to make stock hives strong for another year. Possessing strong hives in autumn, hardly anybody who gives a moderate amount of attention to his bees will fail to be successful. We hold that hives cannot be too strong in young bees in autumn if they contain food enough for the population during the winter and early spring months. The difficulties and dangers of bee life in winter should be well understood. As bees live nine months only, many reach the span of life and die in the winter months. Only those born in August and September can be depended on for the necessary work of April and May, as cold weather in early spring may prevent an early hatch of brood. Great losses by chills during winter dances are frequent. Sometimes the ranks of the community are thinned by dysentery, sometimes by mice gaining access to hives and eating the heads of the bees, sometimes whole communities are destroyed by mice. Small communities are often killed by cold. Strength in autumn goes far to promote health and safety in winter, activity and prosperity in spring.

There are two ways of making hives strong in bees in autumn. One is by giving them additional swarms from honey hives; the other is by treating bees so that late hatches of brood are obtained, and of course this is done by artificial feeding. If six patches of brood the size of the crown of a man's hat are safely hatched in a hive at the end of August or in the month of September, the hive will be a strong one, able to bear and survive the difficulties of a severe winter. If this lesson be well understood and carried into practice by the bee-keepers of England, their success will be more general, and bee-keeping will very likely become more popular than it has been hitherto. As to the time of feeding-up stocks for winter, it should be known that early feeding, say in August, is better than late feeding, say in September. In August more flowers are in bloom, and pollen, so necessary for breeding, is plentiful. In September the weather, generally speaking, becomes colder and less favourable for breeding and hatching and comb-building. In late feeding there is, too, the greater danger of losing bees when they fly about during the excitement of feeding and in fetching water for the brood. It may be laid down as an axiom that early feeding is preferable to late feeding. One year I was so engaged that my bees were neglected till October, when they were fed-up with winter stores, which caused them to breed pretty extensively, as the weather was mild at the time. Before the brood came to maturity a severe frost killed it. Feeding and breeding should be over before autumnal frosts come. Bees naturally prepare beforehand for times of rest and quiet in autumn and winter. If they have a little sunshine and a winter dance now and then, and their dead cast out, the quieter they remain from September to February the better. Excitement in winter is not good for bees. Whatever feeding is necessary let it be done as soon as the honey season ends.

Bee-keepers are pretty well acquainted with sugar-feeding, and therefore little need be said about it here. Everyone carries out his own plan, and considers it the best. I do the same, and find no fault with the plans and modes of other bee-keepers. In spring and summer syrup unboiled, mixed at the rate of 1 lb. of sugar to a pint of water, is used. In autumn our syrup is mixed at the rate of 6 pints of water to 7 lbs. of sugar, and boiled. A slight boiling improves it in taste and appearance, and we think makes it keep better. Summer feeding is resorted to merely to keep bees alive, not for storing-up. Food in autumn is given to be stored up for winter and early spring, and therefore the quality of the food should be considered. Good sugar, mixed at

the rate indicated above and boiled, is excellent food for bees; and swarms wholly fed by it are healthy all the winter. This is well known, but it has been said that boiling is quite unnecessary. It may be so, though we think differently.

One word here about crude and perfect honey. It is well known that I believe bees have something to do in the perfecting of honey; that the crude material gathered from flowers undergoes a change—call it a sweetening and thickening process—in the bodies of bees after it is gathered; and that without the bees it cannot, by any process of evaporation, become honey proper. During the last discussion in the *Journal of Horticulture* I expressed my intention of extracting some crude honey this year and sending it to the Bee-keepers' Association for examination. The honey was extracted, a full basin of it, but instead of sending it to London I kept it for the Manchester Show, to let bee-keepers taste and examine it there. It was, when taken, a pure and beautiful sample of crude honey, gathered from white Clover. Standing on the shelf of a cupboard in the kitchen it began "to change." It will not keep. If I had boiled it, it might have kept longer; as it is, it will be at the Show, and probably those who see and taste it will need no more evidence to convince them that perfect honey is not to be found in our fields and forests.—A. PETTIGREW.

TRADE CATALOGUES RECEIVED.

Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Bulbs.*

Jules de Cock, Faubourg St. Lievin, Ghent.—*General Plant Catalogue.*

Louis Van Houtte, Ghent.—*Catalogue of Bulbs.*

B. Fadderjahn, 16, Retter-Strasse, Berlin.—*Illustrated Catalogue of Bouquet Papers.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Vine Leaves Curled (*A Reader*).—There is no mildew on the leaves nor insects of any kind, and no sulphur is needed. The appearance of the foliage is peculiar to the variety, and your conjecture is probably correct. Since the days are less bright no material harm will be done, but should the heat be again excessive you had better sprinkle a little whitewash on the glass where there are signs of the foliage scorching or curling.

Carpet Bedding in the Parks (*Agent*).—If you are meditating a visit to the metropolis you ought certainly to see all the principal parks, as they are very convenient of access and display some varying styles of bedding. In the south of London Battersea Park is especially worthy of a visit, not only for the carpet bedding but also for the subtropical department. In the west Hyde Park, in the north Regent's and Finsbury Parks, and in the north-east Victoria Park, may all be seen with advantage, especially the last named, as there the designs in which you take particular interest receive considerable attention with very admirable results.

The Cucumber Disease (*W. P.*).—The Cucumber roots you sent are infested with the minute creatures termed Anguillas, which form the small tubercles upon the root. Illustrations of the disease, with a magnified section of a root, are given in No. 720 of this Journal, which may be obtained from the publisher for 3½d. in stamps. The only remedial plan you can adopt is to destroy the plants, remove the old soil, and thoroughly cleanse the house. When making up fresh beds obtain the soil from a different locality if possible, and be careful that none of the old compost becomes mixed with it.

Seedling Pelargoniums (*T. C.*).—The truss was much crushed in transit, but so far as we could judge the variety appears to be a very good one. The truss is large, the flowers even in outline and very rich scarlet in colour, and if the habit is compact the plant is well worth preserving. It is certainly not better than many of the fine-t now in commerce, and you would doubtless experience much difficulty in obtaining a suitable recognition of its merits at an exhibition, yet it is well worth your attention, and would probably prove useful for culture in pots.

Potatoes Diseased (*S. C.*).—The tubers you sent are affected with what is termed the scab, which is generally considered to be the result of the plants being grown in soil that contains corrosive or deleterious substances, or an excessive amount of manurial agents. The Tomato is certainly a very poor sample, but with the exception of the two small blotches does not appear unhealthy. Is the foliage injuriously affected?

Euryale ferox (*R. S. T. M.*).—The aquatic which you describe is *Euryale ferox*, an East Indian plant that is well worth a place in any garden where tropical aquatics can be accommodated. The leaves are orbicular in form, somewhat resembling the *Victoria regia* but smaller, and bearing upon both surfaces numerous large spines. The flowers are bright violet in colour. It can be grown in a pot, pan, or basket plunged in the water, the soil consisting of turfy loam, a small proportion of manure, and coarse river sand.

Culture of Colax jugosus (*W. R., Hants*).—This attractive little Orchid is by no means difficult to grow if attention be paid to its very moderate requirements. It is an ally of the *Maxillarias*, but requires a higher temperature than the majority of those in cultivation. The Cattleya house is a very suitable position for the plant, a compost of peat and sphagnum being required, and above all particular care in insuring good drainage in the pot is necessary to obtain the species in its best condition. The spikes of purple-striped flowers are very pretty, and are always greatly admired.

Trichomanes reniforme (*Stella*).—The small frond you sent is that of the above distinct species, the name of which is derived from the form of the fronds. It is one of the prettiest of the genus, and if you bestow proper care upon the plant it will well repay you. A Wardian case is best suited for it as for most other *Trichomanes*, peat in large pieces as rough as possible and sandstone constituting the best compost.

Globe Thistles (*J. Rogers, Sussex*).—These very distinct members of the Compositae family are included in the genus *Echinops*, and are well suited for planting in large borders or where a subtropical effect is required. As you only require a few forms the following would suit you, as they thrive in almost any soil that is not excessively heavy:—*Echinops spharocephalus* with pale blue flower-heads, *E. Ritro* with purplish blue flower-heads, and *E. ruthenicus* with bright blue flower-heads. The two last are usually about a yard high when fully grown, but the first-named reaches the height of 6 feet.

The Manchineel Tree (*X., Chester*).—The tree respecting which you inquire is the *Hippomane mancinella* of botanists, and is related to our common Spurge. It is a native of the West Indies, South America, and Arabia, on the seacoast, and receives its name from the Spanish word *mancinilla*, signifying a small Apple, its fruit having that resemblance. It has been reported by various writers that, so volatile and virulent is the poison of this tree, persons have died from merely sleeping under its shade. This, however, is an exaggeration, as it has been frequently proved beyond a doubt that no more danger arises from sleeping under that tree than from any others inhabiting the same localities as those in which the Manchineel grows. Ricord Madana says he has travelled two leagues under its shade without experiencing any inconvenience. It nevertheless possesses highly poisonous qualities. All its parts, even the green fruit, are charged with a milky juice, which contains a considerable quantity of caoutchouc. This juice has the odour of wormwood and tansy bruised, and if this odour is inhaled for some time it causes a pricking feeling all over the person, and a choking sensation in the throat. The juice is so acrid and corrosive that the natives poison their arrows with it, and it is said that negro-drivers dip the lash of their whips in it to render the punishment of their victims more severe. The ripe fruit is the size of a small flat Apple, with many deep furrows on the outside, and an agreeable odour of citron, which perfumes the whole air; the flesh is at first quite mild, but afterwards causes burning in the mouth. On account of this insipidity at first some animals eat the fruit and die, having the stomach inflamed and even perforated with black spots like the grounds of coffee. Bruce asserts that when it falls into the sea fish and crabs that eat it are not injured, but those eating these animals are poisoned.

Oxalis elegans (*Inquirer*).—The following particulars concerning the plant and some of its allies respecting which you desire information are from the pen of Mr. Thompson of Ipswich, and therefore thoroughly reliable. "In the case of this genus the new tubers annually formed require to be dug up after flowering, as they are produced at such a distance from the surface that, unless this precaution is adopted, they will eventually be lost. In the case of *O. Bowiei* and other autumn-flowering nearly hardy species it is advisable to defer the removal of the tubers until spring, as in severe winters they would be safer at a depth of some inches; and from the late period at which the blossoms are produced the young tubers would suffer from being disturbed in their immature state. As they do not commence their growth until the following summer, the month of April will be sufficiently early to replant them. The bulbs of the *Oxalis elegans* do not penetrate the soil so deeply as some of the other species; but they should, notwithstanding, be replanted every autumn after the decay of the leaves. The soil best suited to this and most of the *Oxalis* is a light sandy loam with an admixture of peat or leaf mould. A dry sunny situation should be chosen, for the blossoms expand only under sunshine. *Oxalis elegans* is a very free flowerer, even the small bulbs will generally produce several umbels. The trusses will need the support of a small rod to prevent them from being dashed to the ground by heavy rains; and for this purpose nothing is better than the top of a slender unpeeled osier. These supports are commonly employed by professional florists, but they are not so generally in use among amateurs as they deserve to be. Their pale bark renders them very inconspicuous, and their freedom from knots or roughness, and tapering form, makes them, in our opinion, far more desirable than the brittle hazel rods or painted sticks ordinarily used for these purposes. The hardness of the present species has already been adverted to. It will be prudent, however, to afford the roots some protection in very severe weather; but the covering should not be suffered to remain too long, or the bulbs would be forced into premature growth. All the *Oxalis* may be cultivated in pots, and when thus treated they can easily be preserved through the winter in a dormant state. Considering the great interest attaching to this pretty genus, and the showy character of their blossoms, we are really surprised that they are not more frequently met with. A bed of mixed species, planted in clumps of eight or ten bulbs each, forms in sunny weather one of the most attractive objects imaginable. All the half-hardy species which flower in summer and autumn may be thus grown, and their tubers may be dug up after the leaves are withered, and preserved in dry sand."

Culture of Pleroma elegans (*N. R. M.*).—Established plants must be cut in closely after flowering, and kept rather dry and cool for about three weeks, and then rather close and moist, being careful not to overwater; and when the young shoots are an inch long turn the plant out of the pot, remove most of the old soil without disrooting much, and repot in the same size pot. Keep rather close, moist, and shaded for a few days, then admit air moderately, and keep the plants in a light airy position during the winter. In April shift into a pot 2 to 4 inches larger in diameter, and the plant will be the better of placing in a Peach house started to ripen the fruit in June, the moisture from syringing and the well-ventilated atmosphere securing a stiff vigorous growth. Failing this convenience, keep it in the warmest part of the greenhouse, but well ventilated, and syringed twice daily. In July keep it in a cool airy house shielded from midday sun. In September return it to the greenhouse, assigning

a light airy position. The shoots if growing irregularly may be stopped, but not after June, and they should be tied in autumn after the manner of Azalcas. If the plants are young they may be potted in June, in addition to spring potting. The plants will therefore have a season to grow in and another to flower, so that two sets of plants will need to be grown to have flowers every year. Sandy fibrous peat four parts, very fibrous sandy loam one part, and one part in equal proportions of pieces of charcoal, broken pots, and silver sand, well mixed, and used rather rough, will constitute a suitable compost.

Name of Fruit (Mrs. B.).—The Apple was in such an immature state that its name could not be determined.

Names of Plants (J. M.).—The leaves sent were much crushed, but are undoubtedly those of Clematis montana. (W. J.).—1, Lasiandra macrantha; 2, Maurandya Barclayana; 3, Davallia canariensis; 4, A strong shoot of Selaginella cressa. (O. L.).—1, Malope trifida; 2, Kitaibelia vitifolia; 3, Campanula carpatica. (J. F.).—2, Hypericum perforatum; 4, Malva moschata alba; 6, Aconitum napellus autumnale; 7, Campanula Trachelium; 8, Jasminum officinale; 11, Allium globosum. The others were too withered to be recognised.

Comb Foundation.—Mr. T. Varley desires information concerning the methods and cost of manufacturing comb foundation.

COVENT GARDEN MARKET.—AUGUST 17.

MARKET quiet, and prices generally lower. Large arrivals of Grapes from Channel Islands. Supplies of all classes of fruit in excess of the demand.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1 sieve	2 0 to 2 6	Lemons.....	12 case	12 0 to 18 0
Apricots.....	box	1 6 3 0	Melons.....	each	2 6 3 0
Cherries.....	1 lb.	0 0 0 0	Nectarines.....	dozen	4 0 10 0
Chestnuts.....	1 bushel	0 0 0 0	Oranges.....	100	4 0 8 0
Currents, Black.....	1 sieve	6 0 0 0	Peaches.....	dozen	4 0 9 0
„ Red.....	1 sieve	3 6 4 0	Pears, kitchen.....	dozen	0 0 0 0
Figs.....	dozen	1 0 2 6	„ dessert.....	dozen	0 0 0 0
Gibbets.....	1 lb.	0 0 0 8	Pine Apples.....	1 lb.	2 0 3 0
Gobs.....	1 lb.	0 0 0 0	Strawberries.....	per lb.	0 0 0 0
Gooseberries.....	1 sieve	2 6 3 6	Walnuts.....	1 bushel	0 0 0 0
Grapes.....	1 lb.	0 9 4 0	ditto.....	100	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	1 punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress.....	1 punnet	0 2 0 3
Beans, Kidney.....	1 lb.	0 3 0 6	Onions.....	1 bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	„ pickling.....	1 quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts.....	1 sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	1 quart	0 9 1 0
Carrots.....	dozen	0 4 0 6	Potatoes.....	1 bushel	2 9 4 0
Cauliflower.....	100	1 6 2 0	„ Kidney.....	1 bushel	4 0 4 6
Cauliflowers.....	dozen	0 0 3 6	Radishes.....	doz. bunches	1 6 2 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 6	Scorzenera.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	1 basket	0 0 0 0
Fennel.....	bunch	0 3 0 0	Shallots.....	1 lb.	0 3 0 0
Garlic.....	1 lb.	0 6 0 0	Spinach.....	1 bushel	3 0 0 6
Herbs.....	bunch	0 2 0 0	Turnips.....	1 bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows.....	each	0 0 0 2



POULTRY AND PIGEON CHRONICLE.

THE ROYAL COMMISSION ON AGRICULTURE.

(Continued from page 142.)

IN considering the position and condition of the business of farming, in which the home farmer will find his share of the difficulties, we reckon the labour question as it now exists as a serious matter. The causes of which he may have to complain are for the most part beyond his control. They consist chiefly of the increase of wages that have to be paid to farm labourers, the inefficient labour rendered for the wages paid, and the fact that farmers are obliged to employ men to do the work of boys in consequence of the latter being kept at school through the operation of the compulsory clauses of the Education Act. In various counties and districts it is also found that women are not available for field work as formerly. The questions of labour, together with the increase in the amount of tradesmen's bills, make up a formidable item in the account when we take the cost of production of corn, &c., into consideration. The only exception we can find in some of the costs of labour is that which prevails in some of the northern counties, where the men and boys are provided for in the establishment of the farmer, either in his house or an

attachment thereto. From various evidence this system of securing farm labourers is said to answer, the men being constant workers by an agreement for the year's service. This is, however, quite the exception to the rule of management connected with farm labour, and it is not likely to extend beyond those districts. There is no doubt in the rural districts, since education amongst the agricultural labouring classes has prevailed, that the young men and lads aspire to other work, and the best capable and most enterprising migrate into the towns, thus leaving the farmer the least capable and the indolent portion of the rising generation.

The importance of labour-saving machinery now claims our notice, and with all the practical value attached to its use, such as the value of time saved in the operations; yet it is found from evidence obtained by the Royal Commission, and particularly in the south and south-eastern counties, that after charging a fair and usual per-centage on the cost and maintenance of labour-saving machinery the whole cost of the labour on the best-managed farms has increased more or less during the last few years as compared with any former period. Nor, under the special circumstances by which agriculture is surrounded is it easy to see without further inquiry how the home farmer is to improve the position. He should not be discouraged by his present difficult position, but pursue his calling with diligence and industry, so that he may avail himself of every change in conducting his business which promises increased advantages, whether it be in connection with the management of his live stock or the rotations of cropping the land.

The report of the Royal Commission gives us a large amount of information relating to the stocking and cropping of the farms throughout Great Britain as well as in different countries abroad; we shall therefore introduce such changes as we may consider most likely to yield a profit. In order that the labour required on the home farm, as well as farms in hand, may be available, especially upon the outlying farms away from towns or populous villages, one of the first points to be considered is the cottage accommodation for a sufficient staff of workers, to include the labourers' families and young men as lodgers. It never answers the purpose to depend upon casual labour, as it is seldom available at the time required, or efficient when obtained. In considering the future of practical farming, in order to anticipate the position, owners of land should first proceed with a determination to make the land more valuable as it comes to hand, or on the home farm to maintain and also improve its previous capacity for production. In doing this ample and convenient homesteads with covered courts must be provided or maintained. In setting out the land on the estate, in order that it may be either let off or held in hand according to circumstances, it will frequently be necessary to appropriate a portion of the poorest and least eligible land for cultivation for planting with Larch Firs. In order to obtain a quick return for the outlay they may be planted as thick as Cabbages, or otherwise at intervals with underwood, so that after a crop of timber has been taken underwood may be left for future profit. These methods of planting will be suitable for nearly all soils beneath a certain annual value however situated. For a detailed statement on this point we must refer the reader to an article in this Journal of the 22nd of April, 1880, under the heading of "Management of Woodlands." Another important matter to which we will direct the home farmer's attention is the laying down into permanent pasture all soils adapted for it, and in suitable situations; for it is often the case that when farms come to hand after a previous letting, that various questions of importance arise which probably were viewed by the proprietors with little concern whilst held by a tenant. A statement in detail of laying down land into permanent pasture will be found in this Journal, dated February 5th, 1879.

We must now allude to another way of utilising the poorest

land often inaccessible for cultivation. It is reasonable to suppose that landowners possessing estates of large or considerable extent will require to preserve game for their own amusement, in which case the land whereon it is reared should not be let, but held in hand to a sufficient extent both of woodland and pasture, and wire-fenced-in to prevent ground game from roaming. Certain soils under adequate management can be made by the rearing and sale of rabbits not only a source of amusement, but also of profit. A competent shepherd keeper will be enabled to rear game enough (rabbits especially) to realise a higher rental or value of sales than can be obtained from the best-managed farm upon an estate. Few farmers are aware of the extraordinary number of rabbits which may be reared and sold as an acreable produce if they are encouraged keeping the right sort, casting up mounds, and planting Gorse in which they may breed and take shelter, and also by cultivating crops available for feeding them at all times. It is not necessary at present to enlarge further upon the subject of warrens for rabbits, or breeding and feeding them, as we purpose at a future time to fully consider this subject.

How far it may be desirable to grow timber round the fields and retain wide hedgerows is also worth consideration, for it will often improve the value of land, whether in hand or let to a tenant, to remove both timber and fences, in order to facilitate the use of steam cultivation, and improve the chances of securing the crops both at hay time and harvest. Again, we must consider in the future the advantage of paying more attention to the planting of orchards, and also how far the growth of Pear, Apple, and Plum trees can be made to take the place of the Oak, the Ash, and the Elm. We have no doubt this may be done with profit by planting fruit trees on the borders and banks after the removal of timber upon the farm road and pasture boundaries and such places, and at the same time improve the selling or letting value of the property without destroying its ornamentation; in other words, to benefit cultivation, instead of its being depreciated by the growth of timber for the advantage of future generations, believing, as we do, that timber should be grown chiefly in the woodlands, or a few trees for ornament only on parklands or upon land suitable and likely to be required for building sites, &c., in the future. In the report of the Royal Commission evidence will be found of great consequence as to the amount of capital which should be employed upon the home farm or farms in hand, for when farms fall in on the estate the knowledge of the capital required for working them is essential in deciding the question or policy of letting or resuming the occupation. This point with others will engage our attention hereafter.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are chiefly employed in connection with harvest work, for either the reaping machine or the carting and stacking of corn affords them nearly constant employment. On one home farm in a southern district both Barley and Wheat had been carted and stacked on the 27th of July. We also noticed that all the land required had been seeded with Turnips, and the young plants were well up and growing on the 6th of August; and having received a liberal dressing of superphosphate, we expect on such light forward land that the crop of Turnips will be abundant. The land generally has been so dry that the seed on large tracts of land after fallow and green crops could not vegetate earlier than when sown out of corn stubble. Backward fallows after Peas, Winter Beans, and seed Vetches may now be cultivated with advantage, for in many districts the land is quite foul with couch and weeds. The weather has been and is still favourable, so that the labour of horses will have full effect towards preparing the land in time for Wheat. Much of the Clover land intended for Wheat is also foul with couch, but we hesitate before making what is called a bastard fallow after Clover, preferring to plough and press after the dung has been laid out in October, up to which time the lea should be fed close by the ewe flock or backward lambs, because they will eat close a great portion of the couch. If, however, there should be too much to be fed close and ploughed in, we prefer to use the scarifier or Howard's self-lifting drag with the points on only, which will comb out the couch and leave the Clover roots nearly entire—an object of great importance, because they supply on their decay an abundance of food for the Wheat plant. If the number of horses kept on the home farm should be found insufficient for autumn fallowing—that is, cleaning the stubbles and land intended for roots next year, we advocate hiring the steam tackle, and break up the land 8 or 9 inches in depth by working first lengthways and then crossways. This will lay the land up rough and give the horses the power of harrowing, rolling, &c., and clearing off the couch; the land may afterwards be ploughed a good depth to lie for the winter. If there should be a little couch left a small amount of labour in spring will suffice to clean the land entirely, and this is the best practice also with land to be sown with Barley in the spring, as it not only allows the Barley to be sown early, but the land is sure to be kind and mellow after the autumn fallowing. Upon those farms, however, where oxen had been bought

in for work in the months of June or July they would go far to supply the place of steam power, because they work constantly on the land previous to and during harvest or afterwards. This forwards the tillage very much, and when well fed at the same cost as a horse they will improve in condition during the working period, and make capital animals to go into the boxes for winter fattening after the Wheat sowing is done and other work, which they will assist in accomplishing, such as finishing the fallow or winter ploughing.

In cutting the Lent corn we prefer to cut and tie the crop instead of harvesting it as loose corn, because after being tied the carting goes off very easy; besides which, especially as relates to Barley, it is advantageous, for as loose corn while lying in the field in the grain is sure to become discoloured more or less, whereas if tied only a portion can be discoloured, and the fodder also, for only a portion of the straw can be much injured. The same observations also apply to drege corn or white Oats. In making ricks in the field we prefer to make all our ricks round, whether of Wheat, Barley, or Oats. Even when the Lent corn is carted loose we prefer the round stack, as there is less outside to the rick, and it requires less thatch, which is also not so likely to be torn off by the wind. We, however, approve of ricks no bigger than can be thrashed by steam power in half a day, and when placed in pairs the two can be thrashed without removal of the tackle, and the straw from both ricks made into one as fodder or for sale.

Hand Labour.—Men will still be required chiefly in assisting at harvest work and ricking. Every opportunity should, however, be taken by both men and women for hoeing and singling the late Turnips, which have latterly grown almost like magic. Whenever they are likely to be damaged for want of hoeing, we find it answer if the roots are thick enough to run the horse hoe through them crossways with the rows, cutting a space about a foot wide; this will save them from present injury if they are singled out in good time afterwards.

Live Stock.—Previous to the late rains keeping for sheep had been very bare. Latterly, however, the grass in most instances has made great progress, and this together with the second growth of Saintfoin and Clover, and in some cases the early Turnips and Rape, are fit for folding off, in which case we may assume that the breeding flocks at least are well provided for during the autumn. The cattle in the pastures where they are very bare, and they are generally so, should be assisted with cake given mixed with early Turnips cut in troughs. The dairy cows in the same way may be fed at the stalls at milking time—morning and evening. The young cattle should also be assisted if intended for baby beef in the same way, but these the sooner they go into the boxes for their winter feeding the better, because well-kept young cattle, if allowed to lie out at night time, especially in low foggy meadows, are quite likely to be attacked with the fatal complaint of quarter evil, or ill, as it is variously called in certain districts. We know no cure, so the value of preventive management ought to be valued. With regard to horse keep or fodder for them in the stable, it is nearly exhausted except in the case of late-sown summer Vetches sown on purpose for their autumn feeding. When this is exhausted a little hay chaff with Oats and Maize, and early Turnips or Carrots pulped and mixed, is the best food; but we object entirely to turn working horses out to graze at night time for various reasons which we have often alluded to in these columns, but more especially to avoid accidents and to save the manure.

VARIETIES.

WEST OF ENGLAND APIARIAN SOCIETY.—On the occasion of the Weston-super-Mare Horticultural Exhibition last week the above Society held a Bee and Honey Show. The entries were not very numerous, but the quality of the honey was generally good. Some of the chief exhibitors and prizetakers were Messrs. Abbott and Son of Southall, A. L. Perrett, J. Cox, G. Lovell, G. Dyer, F. Parks, and J. Shorney.

— *THE HOP CROP.*—Having thoroughly inspected the whole of the Hop-growing district in Kent and Sussex, we are now in a position to give an approximately correct idea of the prospects of the Hop crop of 1881. Our observations embrace nearly all the principal Hop-growing parishes. East Kent, and notably the Canterbury district, is good. In the best gardens the drought has interfered somewhat, causing blind bine, and there are still indications of mould in some gardens; but it seems probable that Canterbury, Rainham, Selling, Faversham, Newington, Sittingbourne, and Rochester will produce an average of 12 cwts. of first-rate quality Hops per acre. At Rainham lice were very numerous in some gardens. The next favoured district is South Sussex, comprising Battle, Robertsbridge, Ticehurst, Wadhurst, Bodiam, and Etchingham, and here a yield equal in quantity to that of East Kent may be expected, but of course the quality will not be so good. The north part of Sussex, notably Tunbridge Wells and Frant, are not so good, and here we should not

estimate the growth at more than 5 cwt. per acre. In the majority of the gardens from Paddock Wood to Ashford, with Cranbrook, Newendon, Benenden, Rolvenden, Biddenden, and other parishes—usually a heavy cropping district—we were much disappointed, as slackness of bine prevails to a considerable extent, and it does not seem probable that the average will be more than 6 cwt. The neighbouring parishes of Goudhurst, Horsmonden, and Lamberhurst are more fortunate, and seem likely to produce 9 cwt.; and Brede, Winchelsea, and Rye district about 6 cwt. Maidstone, Chart Sutton, Yalding, and the Farleighs, Malling, and Barming show some good bine, and, if mould does not interfere, a growth of 10 cwt. may be anticipated. West Kent again is decidedly slack of bine. The gardens in and around Chevening, Brasted, Westerham, Shoreham, Otford, and Sevenoaks cannot produce more than an average of 7 cwt. per acre, while Edenbridge, Penshurst, Chiddingstone, and adjoining parishes cannot grow more. Mould does not seem likely to be very serious, except in the district around Maidstone, and the cultivation, we may add, is in nearly all cases all that can be desired.—(*The South-Eastern Gazette*.)

— AMERICAN WHEAT.—According to the official statistics, the Wheat area of the United States is upwards of 32,000,000 acres, or ten times that of the British Islands. The area of the crop of 1875 was 25 per cent. greater than that of 1877, while during 1879 a further increase was made of fully 3 per cent.—an increment of 28 per cent. under two years. Even with this rapid augmentation the Wheat area of the States is stated by Mr. Finlay Dun to be only equivalent to the dimensions of the single State of Alabama, or in other words only one forty-fourth of the total area of the United States. The principal districts of the United States in which Wheat is produced in the greatest abundance, and where it forms a leading article of commerce, embrace the States of Illinois, Minnesota, California, Ohio, Michigan, Indiana, Iowa, Missouri, New York, Pennsylvania, Wisconsin, Kansas, Nebraska, and Oregon. The first three States enumerated produced in 1880 over 40,000,000 bushels of Wheat each; the next five States enumerated produced over 30,000,000 bushels each; and the remaining six States yielded over 10,000,000 bushels each. The chief varieties cultivated in the northern and eastern States are the White Flint, Tea, Siberian, Bald, Black Sea, Egyptian, and Italian Spring Wheat. In the middle and western States the varieties grown are the Soule, Mediterranean, Virginian, Bluestem, Indiana, Kentucky, Old Red Chafet, and the Talavera. The yield varies in the numerous States from ten to forty bushels and upwards per acre, weighing from 58 to 67 lbs. to the standard bushel. It is known that Wheat contains water in greater or lesser quantities, and that its amount is larger in cold countries than in warm. For instance, in Wheat from Alsace the proportion of water varies from 16 to 20 per cent.; in that from England from 14 to 17 per cent.; in that from the United States from 12 to 14 per cent.; whilst in that from Africa and Sicily it amounts only from 9 to 11 per cent. The superiority of one kind of wheaten flour over another is shown by its greater ability to absorb water, and in general American flour may be put down to absorb from 8 to 10 per cent. more of its own weight of water in being made into bread than English Wheat. The English Wheat is usually fuller and more round than the American owing to its being puffed up with moisture.—(*The Miller*.)

— THE COSTS OF LAND TRANSFER.—A "Land Agent" writing to the *Times* states that great hardships have been inflicted on tenants who purchased their holdings from the Irish Church Temporalities Commission, and suggests that rules should be made to prevent similar hardships from being inflicted on tenants purchasing under the new Land Act. He says, "The first hardship to which I allude was the absence of a map of the lands from the conveyance which the Commissioners gave to the tenants. In a case which I know, a tenant, after purchasing a title over an acre for about £30, spent about £20 more in litigation with a neighbour about the boundary of the acre he had purchased from the Commissioners. Had there been a map on his conveyance he would have saved this £20. The second hardship to which I refer was the extremely high charge demanded for preparing the mortgage when a portion of the purchase money was allowed to remain as a charge on the land, and

for this the tenant appeared to have no remedy, as, if I remember rightly, the Commissioners insisted on the mortgage being prepared in their office. For example, I received from the solicitor to the Irish Church Temporalities Commission a demand for £12 12s. costs for preparing a mortgage for £400 for a tenant for whom I was acting. I put the matter in the hands of my solicitor, who succeeded in reducing the amount by £7 7s., so that £5 5s. was accepted as payment in full of an account for which £12 12s. had been demanded."

— EMIGRATION TO SOUTH AFRICA.—While South Africa is slowly forging ahead the sister colonies are supplying her markets with commodities. In every store or grocer's shop, or general *winkel*, the Cape colonist will find tins of Australian beef, and not only does he find it, but he buys it and eats it, and probably finds it more palatable than the round of *trek* ox he last dined off. Butter also is imported in enormous quantities, and spread on bread made from foreign flour or meal. America supplies nearly all the pork that is consumed. To meet its great wants in the way of population and production the Cape is contented to import annually a very few hundreds of immigrants, the majority of whom are non-producers. It retains the services of one hydraulic engineer, where it might well employ a staff as numerous as that of the railway engineers. There are fifty-two millions of acres of waste land, a large proportion of which might probably be turned to profitable account were a hundredth part of the water stored which now runs annually to waste. The settlers of 1820 had everything against them for many years, but to see what they have effected should convince the most sceptical that South Africa is capable of maintaining a thriving population many times larger than its present one. Yet there are people there who persist in asserting that South Africa would succumb under an influx of 10,000 inhabitants.—(*The Colonies and India*.)

POULTRY AND PIGEONS

FANCIERS v. FARMERS.

MR. O. E. CRESSWELL, in reply to my remarks on this subject, takes umbrage at what I wrote with regard to fanciers. I did not attack the true and real fancier, but those who call themselves so, when, perhaps, they have only purchased a few fowls or Pigeons of good quality for the purpose of dealing in them, and sheltering themselves behind the term "fancier" because of their position in life. These are they that I do not consider to come within the true description of the term "fancier." Not, of course, but what they are at liberty to deal just the same as any other dealer or dealers, and do so, and are dealers in every sense of the word, but still they wish to be thought amateur fanciers when they keep their birds more for profit than love.

For example, I consider Mr. O. E. Cresswell a true fancier, and I have always looked on him as such, but there are very many others that only keep poultry, and exhibit them to gain prizes, for the purpose of profit. They buy and sell, they advertise their birds and eggs, and quote their prizes as an inducement to the public to deal with them. A reference to the advertising columns of the papers will prove the correctness of my statement. Whatever they may think of themselves cannot, of course, be known to me, but I have the knowledge of what others think of them.

Mr. O. E. Cresswell says he is astonished and indignant. If he be so I cannot help it. He must know when he read what I wrote that I did not attack such as he, a well-known and a recognised fancier, and I for one believe in him greatly, however poor an opinion I may have of what I may designate the spurious fancier, and it is to these principally that the muddle of the Dorking is in my opinion to be partly attributed. Through a misprint of one word in my article I am made to say, "I have three uncles who were most particular." The word "have" was written "had"—I had, &c. These relatives have long passed away and their farms are occupied by others, or else I for one should not have far to seek for the true Grey Dorking. Mr. Lewrey bought some of his best birds, not his dark-coloured ones, of two of them; and this I can truthfully say, I never saw a sooty-footed bird amongst the whole of their birds, nor even a dark toe nail, and I have seen some hundreds, all of which were clear and white in their legs and feet.

From various experiments I have made I am clear in my own

mind how the sooty feet and legs have been produced in the Dorking, and if the fancier only went the right way to work he might doubtless in a few years get rid of it. But he awards prizes to birds with dark toe nails and sooty feet instead of making a decided stand against them, and so the evil becomes more and more widespread. I deny most emphatically that the Grey Dorking was a delicate bird. I have seen it thrive under the most adverse circumstances, and I never saw in the old stocks any bumble feet nor any of the leg-weakness that is so prevalent with the exhibition Dorking. The way this last is forced to get size has decidedly weakened its strength of bone. Judging at a show this week I had ocular demonstration of the fact added to my former knowledge. But whilst noticing these birds I may mention that every one in the class had more or less sooty feet and legs, and I therefore disqualified the whole. I shall do the same again whenever I judge under the same conditions. I am determined that as far as I possibly can to prevent the true old white-legged Dorking from being lost; and I will strive by argument, by my pen, and by offering prizes from my own pocket to resuscitate it, and prevent its being overwhelmed by the size, coarseness, and colour of a dark-legged mongrel. With regard to a new "standard of excellence," there is the old one laid down by the old true Dorking fanciers. To me it only shows that the modern fancier has got into such a muddle he cannot any longer breed to it.

With regard to what Mr. Meall says I shall notice this on another occasion, when I shall be able to show by extracts of books the value of much that is printed. In my opinion, whether a farmer keeps an animal or a bird, he had better keep a pure breed. Of course I am open to conviction, and if I find I am wrong from actual observation and facts I shall not be slow to acknowledge it, and I have a very good field here in which I may gain much information on the subject, as there are poultry farms that I know of at which fowls are raised for commercial purposes only. As regards the words "Fanciers *versus* Farmers" there cannot be two opinions respecting it. Whatever the writer might have in his mind, the impression on others was certainly not what he (according to his own showing) intended. Would it not have been better to have used as heading "Fanciers and Farmers?" It would have been much more pleasing to the latter.—HARRISON WEBB.

FAMOUS POULTRY YARDS.

TRUMPINGTON (L. C. C. R. NORRIS, ESQ.)

WE had before seen and admired Mr. Norris's yards, but it was each time under the chilling influence of a wintry wind. Superb stock there was in them—Dark Brahma cocks with dense black fluff, and hens of matchless pencilling; but we could not do justice to them when seen under such auspices. The birds, too, were mostly too well known in the show pen to need description. We have now been more fortunate, and on a sunny August afternoon have seen the same yards teeming with a multitude of growing and promising chickens, all, save one or two, hatched since we saw their homes in the beginning of February. It is true that the greater portion of the adult stock has gone for change of air to some country runs, but chickens are to us always the most interesting part of the poultry yard. They suggest the hopes of the coming season, and certainly Mr. Norris's chickens must fill him with many hopes. Singularly different have been the "famous yards" we have described—some tenanted by almost every known breed; others, like that at Trumpington, renowned for but one or two varieties.

We must confess that our own fancy for poultry is somewhat general, and that we have by no means restricted ourselves to one or two breeds; yet we have come to the conclusion that the fancier who does so derives the maximum of pleasure from his pursuit. He masters the peculiarities of his favourite kind, he knows the individual birds better, remembers or registers all their pedigrees, and consequently breeds more scientifically. Different premises have different capabilities, and the occupations of fanciers lead them to keep poultry on different scales. To one who, like Mr. Norris, keeps them as a relaxation from intellectual labour, nothing can be more charming than to have a couple of breeds brought to the highest perfection, and all close at hand, where they can be seen in a few minutes.

We will describe the Trumpington yards in the order we saw them on our last visit. The breeding yards came first, now all tenanted by chickens. These are away from the house, in a paddock bought for the special benefit of the poultry. An acre of more of grass land, with here and there a fine tree, is divided into about a dozen runs; in each is a well-roofed house, and attached to it a dry shed—the picture of neatness and cleanliness, with a nice flooring of grit. Here, when we arrived unexpectedly, Mr. Norris was busied in making selections of the more promising cockerels from a mixed multitude, to be drafted to select runs. As usual, the faithful custodian of the poultry was with him—a veritable walking dictionary of the dates of every bird's birth. Every run was full of young stock, almost fuller than we should care to keep our own at this season; but the grass is constantly swept, and so they are kept sweet. In the first we found a score or

more of Dark Brahma cockerels of pullet-breeding strains; certainly their female relations are more beautiful than themselves. Then came yard after yard of Dark and Light cockerels mixed, of various ages and sizes. The latter breed has only of late been added to the Trumpington yards, and we shall expect to see Mr. Norris continue to hold the place which he has already taken in the first rank of its exhibitors from his experience in breeding Darks. Certainly we never saw more shapely and promising birds than some of the Light cockerels—so square and deep in body, and so densely feathered; indeed, what struck us most through all the yards was the fineness of foot and leg feathering in both breeds, combined with absence of vulture hocks. Most careful breeding alone can have brought this about, for usually in yards whence well-feathered birds come they are the very few selected from troops with vulture hocks; but not so here. We saw no underfeathered birds, and scarcely any with stiff hocks. Another point, too, has been gained by selection. We examined several half-grown cockerels of the Dark variety, and saw their young hackles coming through of the purest silver, and quite free from the yellow sap, which we once thought inseparable from this stage of growth.

From cockerels we came to yards of pullets. Dark Brahmas showing wonderful pencilling, even in their chicken feathers, down to their very feet; and Lights with extraordinarily black neck hackles and splendid feathering. One in particular took our fancy—very short on the legs, densely fluffy, and broad in body. She is now in perfect show condition, and will assuredly run the risk of being called a hen by-and-by; such sometimes is the reward of much care bestowed on early chickens! Younger Light pullets, too, were there, promising at least as well for some day to come, but still in the leggy stage of chickenhood. Last in this row of runs came the earliest cockerels, scarcely so forward as they generally are in this yard, yet one or two Darks should come to the fore at the Palace. The earliest of the lot unfortunately died after winning early honours at a show. We must not omit to mention that all this wealth of chickens, in a somewhat exposed position, is guarded by the finest of Mr. Norris's St. Bernard dogs (for in these he excels as much as in poultry)—a noble fellow indeed.

From this collection of runs we retraced our steps to the pretty shady lawn of the house, and inspected the few of the adult birds which are still at Trumpington. These are chiefly Dark cocks. There are rows of small houses for them round the garden. Each has a covered wire run in front with boarded sides. Nothing could be more suitable for the moulting of single birds. Then we came to other larger runs, the inmates of which roost in portions of a dry barn. All is beautifully kept, the floors sanded and the yards swept, and thence we passed to the famous Rose garden. In a shed with wired run was a beautiful early Light Brahma cockerel, and here we saw packed away the coops which we had once before seen filled with a tribe of chickens fresh from the incubator, pecking away where Roses now bloom. Everything is good of its kind here—a great merit in our eyes.

Last, but not least, we saw the kennel. All St. Bernard's of the highest pedigree, reaching back to the dogs of the Hospice, but far finer than anything we have ever seen there. Doubtless this climate suits their development, for one of the Trumpington favourites, which we specially admired on a former visit, was no longer there, having been purchased for a Swiss kennel. Thus passed a pleasant afternoon. We believe that many of our less fortunate readers are glad to learn something about famous yards, and of the pains and science which have made them famous.—C.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881. August.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Inches.		deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.		
Snn.	7	30.153	63.8	57.5	W.	63.4	74.4	49.2	112.2	41.8	—	
Mon.	8	29.849	66.6	60.7	S.	63.4	76.3	54.4	120.6	49.6	0.776	
Tues.	9	29.564	56.1	52.7	S.W.	63.2	72.2	51.7	121.3	48.8	—	
Wed.	10	29.814	59.6	55.4	S.W.	62.3	70.3	53.3	111.6	48.9	0.026	
Thurs.	11	29.823	60.0	53.2	S.W.	60.9	68.8	47.8	119.2	43.0	0.054	
Friday	12	29.813	54.7	52.7	Calm.	60.8	62.9	53.6	62.9	53.4	0.840	
Satur.	13	29.668	57.3	52.3	N.W.	59.5	60.0	45.9	98.7	43.5	—	
Means.		29.813	59.7	54.9		61.9	69.3	50.8	106.6	47.4	1.696	

REMARKS.

7th.—Very fine and bright throughout.
 8th.—Overcast and dull; rain at 4 P.M., and heavy rain during the evening, and much wind.
 9th.—Wild, dull morning; still breezy, but fine bright afternoon; clear moonlight night.
 10th.—Overcast, slight rain in forenoon; fine, bright, breezy afternoon; moon.
 11th.—Bright and cold in early morning, overcast at intervals during the day; high squally wind; rain at 10.15 P.M.
 12th.—Rain throughout, and very misty.
 13th.—Fine and bright at first, afterwards cloudy.
 Temperature below the average, and the coolest week since the middle of June. Rainfall rather large.—G. J. SYMONS.



25th	TH	Manchester International Exhibition and two following days.
26th	F	Craven Agricultural Show. [Reading Show.]
27th	S	
28th	SUN	11TH SUNDAY AFTER TRINITY.
29th	M	Crystal Palace Fruit Show.
30th	TU	
1st	W	Sherborne Horticultural Show.

THE MANCHESTER INTERNATIONAL SHOW.

BEFORE these lines are in print the International Jubilee Exhibition will have opened in the Royal Botanical Gardens at Old Trafford, and horticulturists from every part of Great Britain will have met and inspected the greatest fruit show of the year. In no other country of the world could an exhibition of equal magnitude and quality be arranged; and foreign visitors, we feel sure, will be the first to acknowledge the superior skill of British gardeners in the cultivation of fruit. There are, no doubt, many gardeners who have not been offered the opportunity of visiting the Show in question because its importance has not been appreciated by their employers; and it may be well, therefore, to remind all those whom it may concern that the Show does not close until Saturday night, and there is, consequently, yet time for arrangements being made for a visit.

Nothing has a greater stimulating effect on the mind of a gardener than such evidence of the skill of others as a really great show affords, and there can be few men who would not benefit considerably by a close and intelligent inspection of the products, not only in the fruit classes, but also in those for plants, flowers, and vegetables. There are gardeners who seldom have the opportunity of travelling beyond their county or district, who rest firmly in the opinion that they have the best of its kind that is producible; but a visit to a great gathering of the kind indicated will in all probability take the conceit out of them, and leave them the gainers, impelling them also to greater efforts, and thus rendering their services the more valuable.

An event such as the one under consideration is not of yearly occurrence. It is exceptional by its scope and magnitude, and it will be to the advantage of all who are interested in maintaining the high position of British horticulture if the fewest possible number of those to whom the care of our gardens are entrusted are prevented from enjoying a day at Manchester during the present week. In any case little can be lost by a day's cessation from labour, and in most instances much would be gained in consequence of the instruction that an intelligent and earnest man would inevitably gather by a critical examination of the exhibits in this great Show.

The period of the year, too, is favourable for a short holiday, and it is easy, even in small gardens, to make provision so that nothing can suffer during the gardener's absence. During the spring and early summer the case is very different, and hourly watchfulness is then necessary for the prevention of

accidents that might, if they occurred, have serious results. There is no such danger now. Any garden may safely be left for a day or two in the charge of an intelligent apprentice or an obedient painstaking labourer, and if these carry out their instructions there is no risk whatever of anything sustaining even temporary injury. We mention this because we know there are proprietors of gardens who are animated with the best feeling towards their *employés*, but who fear something may be neglected when they are absent from their duties. An occasional break in a long period of monotonous labour is desirable both in the interests of master and man. This is the best time for a gardener to have a short holiday, and the great and variedly interesting Show that is now being held affords one of the best opportunities that can occur to enable him to employ a leisure hour enjoyably, instructively, and profitably.

We learn by a telegram that has been sent to us since the opening of the Show that the Exhibition is one of extraordinary magnitude and merit, and we strongly advise all who have the opportunity of doing so to inspect such a display of garden products as may not soon occur again in a position so easily reached from various parts of the country.

THE FRUIT CROP.

At last we are once more blessed with a year of great abundance. Crops of all kinds have thriven; premature decay, blight, and disease are almost unknown, our only complaint being of some untimely fruit-shedding, caused by the drought of early summer, which in some instances seriously thinned a good crop of Cherries, but generally did good by usefully relieving Pears and Apples of a small proportion of the superabundant fruit, which even now appears likely to be somewhat undersized—another and more serious result of the hot dry weather. Peaches and Nectarines on open walls are pictures of health, and almost all of them have a full crop of fruit, of which Early Beatrice upon various aspects was finished by the second week in August. Early Rivers will soon be over, and Lord Napier Nectarine is fast approaching maturity. Later varieties will form an admirable succession to the trees under glass.

Of Plums many varieties have a heavy crop, notably Early Rivers, Prince Engelbert, Victoria, Mitchelson's, White Magnum Bonum, Gisborne's, Pond's Seedling, Lafayette, and Coe's Late Red, all which are large pyramidal trees in an orchard. Early Rivers has been in use about three weeks, and there is enough good fruit of it remaining to last till the end of the month. It is a very useful sort, being highly valued as much for all culinary purposes and for the excellent jam it makes as it is for its earliness. No garden should be without this Plum, and growers for market must assuredly find it a very profitable investment. There are four pyramids 12 feet high of it here side by side, and they are remarkable for uniformity in vigour, general appearance, and fruitfulness. Since they came into bearing they have not failed, and last year the crop was as abundant as it is now.

Pears are perhaps more abundant than any other fruit. Cordons, palmette verriers on walls and fences, and pyramids are with few exceptions fruiting well. Citron des Carmes and Summer Dojenné are already over; Beurré Giffard is now in use; Jargonelle comes next, followed by Williams' Bon Chrétien and Beurré d'Amanlis. I am glad to say very few traces of cracking are perceptible among the delicate-skinned

Doyennés, and I hope to have some perfect fruit of Red Doyenné and Doyenné Defais, two of the most difficult Pears to bring to perfection. I hope to give a detailed account of the Pears later on.

Apples are also plentiful upon trees trained and untrained, pruned and unpruned, so that no merit can be claimed on the score of culture; the palm for quantity being certainly borne away by many a huge old standard with its twenty or more bushels of fruit. Joanneting is now in use for dessert, and Duchess of Oldenburgh for cooking. There are plenty of Quinees and Medlars, both of the large Dutch Medlar and the better-flavoured little Nottingham variety. The trees of Siberian Crab, too, are very attractive with a heavy crop of the bright-coloured clusters of fruits.

Bush fruit of all kinds is in profusion. The Raspberries in trenches, mentioned on page 149, have a magnificent crop, which was much benefited during the excessive heat by heavy soakings of sewage water, which was also given freely to Gooseberries and Currants. Why is not that remarkable Red Currant Raby Castle more generally grown? It is an abundant cropper, the fruit is large, hangs late, and the bunches are so long as to be singularly ornamental. A bunch now beside me on my desk is almost 8 inches long, and it has upwards of two dozen fruit upon it. The American Blackberry, always abundant, appears to be unusually so this year. Even where its fruit is not cared for for making jelly, a place should be afforded it for the sake of its ornamental appearance.

The Walnut trees here have a heavier crop of nuts than they have had for nine or ten years. Filberts, too, are very plentiful, Pearson's Prolific as usual having a much heavier crop than any other, not even excepting Kentish Cob, which in comparison appears to have only half a crop, so heavily are all the trees laden of Pearson's most valuable seedling.—EDWARD LUCKHURST.

DEATH AND FUNERAL OF MADAME VAN HOUTTE.

HORTICULTURISTS in all lands will regret to learn of the death of this estimable lady, which occurred under peculiarly sorrowful circumstances on Thursday last, the 18th inst., at the Royal Nurseries, Gendbrugge, Ghent. Madame Van Houtte descended from a Flemish family of honourable position, and was the second wife and fellow labourer of her husband, who founded the great business, which she has, since his death on May 9th, 1876, assisted by her family and skilled foremen, so successfully conducted.

The deceased lady combined with a singularly kind and sympathetic disposition an extraordinary capacity for business, and for twelve hours every day she laboured unceasingly in the conduct of the establishment, and with her accomplished daughters gave to everything, including business and foreign correspondence, personal attention, the practical management of the nursery devolving on her son, Mr. Louis Van Houtte, and the highly skilled and confidential foreman Mr. Charles Van Eecheute. Still, Madame Van Houtte was the head of the family, and the mournful blank caused by her death is felt as a calamity throughout the establishment.

A few weeks ago—the deceased lady being then in her usual health—two men employed in the establishment were drowned in the river that skirts the nursery. Immediately on the occurrence of the fatality, a man who had witnessed the accident rushed into the room of his mistress in a state of terror, and the shock to her system, consequent on the manner in which the lamentable news was communicated, was so great that it ended in her death in the 71st year of her age. The nursery on the day of our visit was a scene of woe that cannot be described, as a great bond of sympathy has always existed between employers and employés in the establishment. This is evident by the fact that there are twelve men there occupying positions of trust whose united term of servitude amounts to four hundred years—a circumstance sufficiently rare to merit record.

The funeral took place on the following Saturday, and as it was so different in its ceremonial from English interments it may be briefly described. We must premise that Belgium is a Catholic country. The entrance hall of the residence was transformed into a chapel, adorned with rich hangings, and the coffin was surrounded with tall tapers, and floral crowns were arranged at the foot. These so-called crowns are offerings of the family and friends, and are really huge wreaths, mostly oval in form and 3 to 4 feet high. There were a great number of them, and some

were extremely beautiful. Nearly every crown had what may be termed a framework of leaves of *Cycas revoluta*; the base of two leaves are secured together, and the tops being also brought together, form a natural and most elegant oval. When the leaves were not long enough for this, they simply formed a cross in the centre of the crown; but it is quite evident that they are considered indispensable in ceremonies of this kind, and the result is that, in Germany especially, the demand for large plants of this *Cycas* is always great, as the leaves can be readily sold by those who possess them at remunerative prices. Attached to each crown is what is termed "the ribbon." This is a ribbon of silk, about 3 inches wide and perhaps 4 feet long, each ribbon containing some motto in ornamental letters—an expression of regret or sentiment of esteem of the contributor in memory of the deceased. These ribbons are preserved by the family and cherished.

On the coffin being brought outside, the crown-bearers, two to each floral tribute, were arranged around it, and addresses were delivered by Messrs. Auguste Van Gcert and Rodigas. The procession then formed; three acolytes, boys in scarlet and white, bearing a large silver cross and banners, then three priests in black velvet robes trimmed with silver, with their servitors in black and white. Boys bearing the smaller crowns preceded the coffin, and men bearing the larger followed, with the relatives, friends, and attendants, the whole forming an immense cavalcade. The priests chanted the service as they proceeded through the nursery, and at the gate a brass band lent its accompaniment. This then headed the procession and performed funeral marches to the cemetery. It should be said the ladies of the family left in carriages before the coffin was removed from the house—not funeral coaches, as with us, nor at what we understand as a "funeral pace," but ordinary carriages, the horses starting at a brisk trot. The whole ceremony was strange to English eyes, and imposing, especially by the great concourse of followers. The 150 nurseries of Ghent must have been represented, and 160 men from the establishment besides other friends were there. Had the funeral been postponed for another day or two the assemblage would have been much larger, for not in Ghent only, but in Brussels and Antwerp, the one theme on the lips of all horticulturists was the death of Madame Van Houtte, accompanied with expressions of deep regret at her loss, and sympathy with the family, which is evidently held in great esteem by all.

Such is a brief description of the funeral ceremony of the lamented head of a great establishment, and the record of it may not be unacceptable to the readers of this Journal, in consequence partly of its novelty, but especially in having reference to a name that is "familiar as household words" in this country, and proportionally respected.

The business of the Royal Nursery will, it is expected, be conducted as usual, Mr. Van Houtte having foremen of more than twenty years' standing in every department, acting under the experienced supervision of Mr. Van Eecheute who has been engaged for thirty-seven years in the establishment. He is still in the prime of life, and is devoted to the business as if it were his own possession; therefore little if any change from a trade point of view can be expected to occur.

AUTUMN PROPAGATION OF BEDDING PLANTS.

Pelargoniums.—One of the effects of the past dry summer—I say "past," as it does not appear we are to have much more real summer weather—will be to delay the propagation of a stock of plants for next season's display. *Pelargoniums* in most districts, and especially where the soil is very poor consequent upon being constantly occupied by either winter or summer bedding plants, without fertility being restored by either manure, leaf, or other soils, *Pelargoniums* have made but little growth, and will yield but few cuttings without disfiguring the beds. The growth then made was, however, of the best description for either flowering or propagating purposes. That formed since the commencement of the showery season is of a very succulent character, and will not easily strike. The undergrowth, which we are naturally inclined to cut out, will be altogether unfit, and the most exposed shoots should be selected if a stock of really good plants be desired. In either case, unless there is a very marked improvement in the weather, the cuttings, after they are made, should be allowed to flag for two or three days, as much of the superabundant moisture they contain is thus evaporated. How they are to be stored, or rather in what they are to be struck, must depend entirely upon the facilities for wintering them. Where there are plenty of houses containing dry roomy shelves, or where there are well-heated pits, and which are also in good condition, then shallow well-drained boxes may be employed, the cuttings

being at once inserted in them. If unheated frames or pits have to be depended upon, then I should recommend striking and wintering the cuttings in 6-inch and 8-inch pots, these being at the least half filled with drainage. If shelves in a small greenhouse are the only available positions (and on these are often wintered a fine stock of Pelargoniums with much less trouble and more certainty than in frames), then I recommend striking and wintering in 4-inch, 5-inch, and 6-inch pots, according to the shelves.

Any ordinary light gritty soil may be employed—such, for instance, as may be obtained from the surface of old hotbeds or seed beds, adding to two baskets of this one of sifted leaf soil and either sharp sand or road grit in liberal quantities. Suitable soil may often be obtained by sifting an old heap of soil from the potting bench. This being in a somewhat moist state when used, no water should be given the cuttings till they are callused and give signs of recovery. The season being late, it is absolutely necessary to place the boxes or pots of cuttings in a bright sunny position, and, if the weather be showery, to cover with lights or a frame, especially in the case of the more delicate golden and silver-variegated varieties, and these will also invariably pass the winter better in pots than boxes. The cuttings may be inserted in boxes about 2 inches apart each way, about five in number in 5-inch and seven in 6-inch pots. The cuttings should always touch the bottom of the holes made by the dibber and be fixed firmly. It should be borne in mind the less growth the Pelargoniums make prior to and during the winter the better. They require but little water, only sufficient to keep them from shrivelling. Being kept in this semi-dormant state they are far less liable to damp off or be injured by frost, and will also break more freely when pinched back a few days previous to potting in the spring. If insufficient cuttings are struck, or if the stock of any choice varieties is limited, the old plants should be lifted before being seriously injured by frost and potted. The roots may be trimmed and many of the old leaves removed; they may then be worked in thickly and placed in a dry position under glass, sufficient water only being given to keep them from shrivelling. Both for these and the young plants the frames especially should be kept as dry as possible, air being freely given on all favourable occasions.

Verbenas.—In the few gardens where these are grown they prove more beautiful and durable than the Pelargoniums. Unfortunately they are not, as a rule, so easily grown. The whole secret lies in the fact that healthy cuttings for spring propagation are absolutely necessary, and unless a good start is made in the autumn these cannot be had. Early in August is considered the best time to propagate the winter stock, as at this time they strike without heat, and are all the better accordingly. At the present time healthy bloomless young shoots should be selected, cutting these below the third joint and trimming off the lowest pair of leaves. Prepare 5-inch or 6-inch pots for them, drain carefully, cover the crocks with rough soil, then half fill with tolerably rich soil and fill up with fine sandy soil, finishing off with a layer of sand. The cuttings must be dibbled in rather more than an inch apart, and watered through a fine-rose pot. Place the pots on a slight hotbed or in gentle heat, and shade carefully till the cuttings are struck, when they should be hardened off and wintered in a cool house, or, better still, in a cold frame. The soil should never be allowed to become dry at the roots, and carefully guard from slugs, as these soon render the young plants worthless. Those struck early in August are sometimes with advantage potted off in the autumn; but this is unnecessary in the case of those struck later. From plants thus treated good cuttings in abundance can be had in the spring. Stock plants wintered near to hot-water pipes seldom produce healthy succulent cuttings, and these only will strike.

Iresines.—A few pots of autumn-struck plants will, if wintered on shelves in an ordinary stove temperature, yield a great quantity of cuttings in the spring. Five-inch or six-inch pots are suitable, and these should be well drained, some rough soil disposed over the crocks, and nearly filling the pots with light sandy soil, finishing off with a layer of sand. About six strong cuttings in the largest mentioned pots would be sufficient, watering these in; place in heat and shade from bright sunshine. Cuttings of these and all descriptions of plants will always strike more readily when disposed close to the sides of the pots. Never allow the soil to remain dry, and fumigate with tobacco or cleanse with an insecticide if the foliage is infested with green fly. If cuttings fail to strike, pot a few old plants before they are injured by frost.

Coleus and Alternantheras.—These require treatment very similar to Iresines, the Alternantheras, however, not being quite so easily wintered. Cuttings will strike freely in heat at the present time, and old plants lift readily. When potted, use pots

as small as is consistent with the size of the plant, as they endure reduction of the roots; and the Alternantheras especially are more easily preserved in 4-inch pots. When well established a warm shelf in an ordinary plant stove is the most suitable position to winter them.

Heliotropes, Ageratums, and Lobelias.—These require treatment similar to the Verbenas. The young growths may now be struck in gentle heat, or plants may be taken up and potted. The only difficulty in this will be experienced with the Heliotrope, and this is also less hardy than the two others. When lifting the Lobelia select some of the smaller plants, as thick bushy plants are apt to damp off, commencing in the centre. Heliotropes and Ageratums will succeed through the winter in an ordinary greenhouse temperature, the Lobelia being best in frames.—W. J. M.

ABOUT THE POTATO DISEASE.

ALTHOUGH the Potato crop is considerably lighter this year, we were congratulating ourselves upon the soundness and extra good quality of the tubers. The American varieties are invariably good during a hot dry season, and on all sides among the cottagers we hear the wish expressed that more "Roses" (American Rose) had been planted, so good are they this season. In early gardens, the soil of which as a matter of course is light, the crops of this variety are matured and beyond injury by disease. A very different tale, however, is told by the owners of later gardens, as these will lose fully one-half of their crop by disease. I anticipated the disease after the heavy rains immediately following the spell of hot dry weather, and I strongly advised all Potato growers with whom I had any conversation on the subject to at once either lift the crops or draw the haulm of all varieties approaching maturity. "We have tried that dodge before," said they, "and prefer to let them take their chance;" their idea being that it was of no practical value, believing it preferable to leave the crops in the ground, so as to be able to separate the sound from the unsound. I quite agreed with them that it is unpleasant work separating the good from the bad when in heaps, but in my conceit thought to prevent the disease. So I have to a certain extent, but not among those I valued most—viz., a large breadth of Myatt's Ashleaf. Immediately after the first heavy rains I had the whole of the tops of these drawn, there being at the time not the slightest sign of disease in the comparatively green haulm. To my surprise this appears to be labour in vain, for quite one-half of the crop is diseased.

Another large breadth, principally of second early varieties such as Snowflake, Triumph, Woodstock Kidney, Holborn Favourite, and some of Fenn's new seedlings, were too vigorous to be drawn, although almost ready for lifting, and the tops of these were cut off near to the ground. In this instance I believe I have saved the crop, as I find but few diseased tubers; at the same time, after my experience with Myatt's I shall not be surprised to find many more in a few days. If the crops are safe it will be simply owing to the haulm being of a more woody nature, the disease not being so readily transmitted to the tubers. As a very practical friend once pointed out to me when I was endeavouring to convince him that the disease owed its origin to a collapse at the roots, the sole reason of the Magnum Bonum being a good disease-resister was the fact of its forming a remarkably woody stem.

Our Myatt's Ashleaf were, when just out of the ground, completely blackened by a late frost, this resulting in the formation of a number of weakly growths instead of one sturdy one; the consequence being a later and a lighter crop very susceptible of disease, and is another proof, if proof is wanted, in favour of carefully preparing the seed tubers. Thinly preserved, they do not start so early and need not be planted so early. This spring, it must be admitted, was unusually unfavourable to the Potato crops, the late frosts being most destructive. I thought I was rather "smart" this season. Next year I hope to be more so, as, should we have a spell of dry weather near the time of the maturing of the Potato crops, I shall watch the barometer closely, and should it give signs of rain up will come my Potato tops. If this prove a success, as I have no doubt it will, I shall urge all Potato growers to obtain a barometer and anticipate the time for Potato-lifting.—W. IGGULDEN.

CHEIRANTHUS ALPINUS.—This is a useful spring-flowering plant that should be grown in all gardens whether large or small. It is a capital plant for the mixed border or for a front line. A large bed of it in spring is very pleasing. Its flowers are lemon-coloured and very fragrant. It only grows about 9 inches high. Plants that flowered last spring and were left in the same position have now abundance of shoots suitable for cuttings. At this season of the year they root readily and quickly, and should be

propagated in large quantities. It will be found upon examining the plants that many of the shoots have produced roots. These shoots should be slipped off and dibbled in on the north side of a wall in rather sandy soil, where they quickly become established. The unrooted shoots can also be taken off in the same way and placed thickly together under handlights. They should be well watered, and the handlights kept close until roots are formed.—SCIENTIA.

RIPENING THE WOOD OF VINES AND PEACH TREES.

THE need for the thorough ripening of the wood of fruit-bearing trees as a means of securing crops of fruit is so generally recognised, that it appears almost unnecessary to call attention to the subject. It is one of those points which everybody is supposed to make sure of, and yet it is one in which we may sometimes fail. I presume everyone who cultivates the soil occasionally makes mistakes, and he who is also engaged in the culture of plants and fruits under artificial conditions may well have mistakes considerably augmented.

We have four Vines of Gros Guilanme, and these have refused this year to carry more than the sixth of a crop, and I have no doubt that want of thorough ripening last autumn was the main cause of the comparative fruitlessness of these Vines this season. Acting on that belief the two vineries in which they are growing are having a two-months course of high temperature. It will not do the other Vines any harm, and I think it will cure these of their tendency to become barren. The degree of heat depends greatly on the weather. At the end of September this hard firing will be stopped. The Vines were started in February, and if they are not sufficiently ripened by the time stated they never will be. Every sub-lateral growth and leaf has just been removed, so that the aid of the sun will be obtained as much as possible. I always make a point at this season when the fruit has coloured to remove lateral growths. I imagine the fruit keeps much better; certainly in old and not very watertight vineries we very seldom have to remove bad berries, even in that most trying of months for late Grapes, November. To support a heavy crop year after year on old Vines all the foliage it is possible to expose to the light is required, but after they are coloured the foliage may be thinned out to the greatest advantage. A house of Black Hamburgs which is started in April has given greatly improved Grapes this year as a result of two weeks' hard firing last September.

Those who have unheated Peach houses to deal with in the north know somewhat of the difficulty, nay, the impossibility, of inducing an average state of fruitfulness in the trees. We have a Peach house here which is kept open night and day after the cold winds have gone in the early part of the season, our aim being to keep the fruit as late as possible. In 1879 the middle of November was reached before the last fruits were eaten, and yet by the application of heat for two weeks or a little more every autumn these trees have never failed with us to bear heavy crops. Our best late Peach is Thames Bank. On the walls we have this year very marked instances of the necessity for ripeness of the wood. Plum trees on south-western and south-eastern exposures are bearing large crops; on the west and east exposures they are almost a failure. One tree looked as well ripened as another, but results show it was not so; and so it is with trees under glass. To outward appearance everything may be first-rate, and yet failure ensues. In fact these Peaches are occasionally quite green in the bark, yet they never fail.—R. P. BROTHERTON.

[An example of green wood bearing fine fruit accompanied this communication, also excellent Grapes, and sprays of Camellias in superior health grown under Vines, other sprays from plants in the open air being much less healthy.—ED.]

TAUNTON DEANE HORTICULTURAL SOCIETY.

AMONGST those societies which hold on through various vicissitudes the even tenor of their way, that of Taunton stands amongst the foremost. Nowhere do we see a better collection of plants, a more varied exhibition in the various departments of fruit, vegetables, and flowers; nowhere a larger gathering of people in comparison with the size of the place, and certainly no show where all classes of people enter more thoroughly into the excitement of the day. The country gentry make a point of being at home for the exhibition day, while from the country round persons of all grades fill the town (which is quite *en fête*), and as the time for cheap admission arrives flock into the grounds of the Vivary Park, where the Show is held. And, to their credit be it said, no meretricious attractions are needed to draw them there; it is simply the Show itself, and it may be the excellent music which is always provided for them, for the

fireworks in the evening involve a separate charge, and there is nothing else provided to draw them. Many reasons, perhaps, conduce to this, but chief among them must certainly be placed the fact that they have a Committee which works harmoniously and with a good will, and that they have always been able to secure the services of an active and courteous Secretary. I have been there for many years. There have been four changes in the secretariat, but of all of them one may say that the gap has always been well filled, and the mantle of the previous Secretary seems to have fallen on his successors.

The Exhibition this year was certainly equal in many respects to any that have preceded it. When I say that in stove and greenhouse plants Mr. Cypher and Mr. Tudgey had to give way to Mr. G. Cole, gardener to Mr. Lawless, readers may readily believe that the plants exhibited were of a high order of merit. It were needless to enumerate the plants shown, but the best of those of Mr. Cole may be interesting. His collection included *Eucharis amazonica*, the finest bloomed and best grown specimen I have ever seen exhibited; *Erica Austiniana*, *E. Marnockiana* very fine, *Dipladenia amabilis*, *Bougainvillea glabra*, *Clerodendron Balfourianum*, *Allamanda Hendersonii*, *Ixora Prince of Orange*, *Ixora Dixiana*, *Erica Jacksonii*. Mr. Cypher, who was second, had fine plants of *Stephanotis floribunda*, *Allamanda nobilis*, *Ixora Fraseri*, &c. In the class for fine-foliaged plants Mr. Cole and Mr. Cypher were placed equal first. The former's plants included *Alocasia intermedia*, *Croton variegatus*, *Latania borbonica*, *Croton undulatus*, *Gleichenia rupestris*, and *Livistonia altissima*. Mr. Cypher had a fine *Latania borbonica*, *Thrinax elegans*, *Cordyline indivisa*, &c. In the class for amateurs' flowering plants Mr. Lawless had *Ixora Colei*, *I. Williamsii*, *Lapageria alba*, *Dipladenia amabilis*, *Bougainvillea glabra*, *Erica ampullacea*, *Dipladenia Brearleyana*, *Allamanda Hendersonii*, &c. The other exhibitors showed very well. Indeed, in looking back upon the exhibitions of some years ago one may safely say that the third prizes in the amateur classes would have safely been first. Pelargoniums were exhibited in large numbers and in their usual excellence.

Amongst cut flowers Roses were very indifferently shown, but Mr. Keynes' Dahlias were very fine. His stand comprised *Lady Chelmsford*, *John Butler*, *Herbert Turner*, *Hon. S. Herbert*, *Goldfinder*, *Duke of Connaught*, *John Dobbs*, *Mr. Dawkins*, *Seedling Yellow*, a fine flower: *Empress Maud*, *Picotée*, *Prince Bismarck*, *J. C. Read*, *Alexander Cramb*, *Lady Gladys Herbert*, *Rev. S. Geddes*, *Mrs. Hodgson*, *Prince of Denmark*, and some seedlings. Mr. Dobree exhibited some fine *Gladiolus*—amongst them *Queen of Taunton*, a seedling very much in the style of *De Mirbel*; *Pictus*, *Camille*, *Madame Desportes*, *Miss M. Dobree*, seedling; *Painted Lady*, *Ball of Fire*, *President*, *Agrilus*, *Aster*, *La Perle*, &c.

Fruit was exhibited in large quantities, and was, especially the Grapes, excellent in quality; while of vegetables both in the amateurs' and cottagers' classes there was a very large and excellent display. The table decorations were not superior, owing in a great measure to their being confined to ladies resident in the county. This is a mistake which will not be repeated. The exhibition of such stands as Miss Cypher's has a most beneficial effect as showing the manner in which it should be done, that which obtained the prize having that elegance and lightness for which she is so well known. Fashions and taste change. Thus, one lady with whom I talked about that exhibited said she liked to see tables decorated with all of one colour—yellow at one time, blue at another, &c. I objected that yellows would look white, and blue a dirty black under artificial light, and that certainly a little more variety would be pleasing; but I believe this is the fashion now, although doubtless after a time we shall reach to the style which has obtained so much praise wherever examples of it have been exhibited.

The day was not so fine as those with which the Taunton Show is generally favoured, but a large company assembled, and I hope it was financially a success. The Committee worked with their usual energy; and there is no exhibition where more activity and courtesy is exhibited, and where the comfort of all—exhibitors, visitors, and Judges—is more studiously considered; while their new Secretary, Mr. Sampson, is a worthy successor of those who have preceded him in the office.—D., Deal.

JOTTINGS FROM THE NORTH.

NOTWITHSTANDING the continued prevalence of cold and wet weather since May, Roses have done well, especially the darker varieties. I never cut more good flowers of the latter than I have done this season. My losses from the severity of the winter amounted to two standards, and a few dwarfs were injured. Close pruning at the end of April was followed by excellent growth and fine flowers. But that dreadful pest, orange fungus, has as usual attacked my plants, and in a very short time has rendered some almost destitute of foliage. On observing it I picked off the leaves affected, and syringed the trees with a strong solution of soft soap mixed with flowers of sulphur. Now there appears something like a check to its progress, but still it spreads. Can nothing be recommended by any of your readers as a preventive or remedy?

I have a few of the newer Roses that have succeeded well with me, and which I have not observed in the show reports. *Duchesse*

d'Aremberg, Louis Spath, Souvenir de Madame Robert, and Leon Renault have given me great satisfaction. Indeed the last named as a dark Rose, and Souvenir de Madame Robert as a light variety, I consider among the best I have. Both are highly fragrant.

Gladioli have been as unreliable as usual. I lost a large number of corms this spring. On some, procured from different houses, I observed a sort of freckle, the corm assuming a somewhat livid colour thickly dotted with minute white spots. This rapidly developed into a decay which was quite new to me in Gladioli. Whether they had been affected by frost before reaching my hands (I am certain they did not afterwards) I do not know, but as frost causes a softening of the roots I assumed such to be the case. All when purchasing should see by baring the corms so far that nothing of this freckle exists. Outwardly they appeared quite sound. As usual, too, some promising plants have withered, and there are plenty of weaklings from fine-looking corms. I am inclined to think that the remarks of "G. O. S.," on page 123, about "coddling" are appropriate here. All, however, is not unsatisfactory. Some grand varieties promise exceedingly well, and we are looking forward to the appearance of well-known old friends and some illustrious strangers with more than usual eagerness. If the weather continue such as we have had for upwards of two months many will not bloom at all, but it promises better at present. Only a few of the earlier sorts as yet show the flower stem. I fancy we must look south in a week to catch a display of those from a more favoured clime.—A NORTHERN AMATEUR.

THE ART OF COLOURING GRAPES.

I READ with interest the article at page 112 by Mr. Taylor on this subject. The rules he lays down are those by which I am guided always in endeavouring to produce well-finished Grapes, yet I cannot say that I succeed as I would wish, and probably many of your readers are in a similar position. Indeed, on reflection, it is plain there is nothing in Mr. Taylor's article but what has appeared scores of times—in different forms, perhaps—before. His directions about cropping, watering, heating, airing, are such as every Grape-grower who has paid any attention to the literature of the subject is familiar with, and, as far as possible, carries out. Of course, it is quite possible to imagine we are carrying out such directions and yet do nothing of the kind. As Mr. Taylor well says, the manual strength—if we dare say so—of any given amount of foliage-surface is by no means always equal to any other equal surface somewhere else. I believe that this fact alone is the cause of many failing to colour Grapes really well. We must be familiar with the condition of the Vines, the borders, the leaves, the water, the treatment, before it is possible to calculate how much fruit Vines are able to perfect; and for want of attention to this many fail. Still, the fact remains that comparatively few people are able to colour their Grapes as they would like. It is not because the Vines are over-cropped—that is the general apology even when the crops are year by year ridiculously small. It is not by want of water; cultivators generally are awake to the wants of Vines in that respect. It is not because there are no good borders, nor because manure is wanting. I think it is too often the want of air. The ventilators are never closed, yet I think it is the want of air.

My experience is somewhat peculiar, and may perhaps, if repeated, throw some light on the subject. I am not particularly favoured in the matter of soil; but, by the aid of semi-scientific manuring I have so far overcome that difficulty that year after year such crops are produced as make the wise prophecy that no Grapes next year will be the result—prophecies which are never fulfilled. The Vine rods are too close—they are only 2 feet 9 inches apart. To overcome this difficulty the Vines are let down a foot from the wires, and the shoots trained V-like upwards, which allows room for a more than ordinary amount of foliage. We take never less than 30 lbs. (but often near 50 lbs.) from each rod. Few bunches are under 2 lbs., and many are over 5 lbs. of such kinds as Black Hamburgh, Foster's Seedling, and others. This is a heavy crop, but the Vines are very vigorous; the foliage is ample and the feeding ample; the top and bottom ventilation is ample, and in summer they are never closed. Our command of heat is all that can be desired; but we maintain cold pipes and a current of air during darkness, no matter what the weather may be.

Some of our black Grapes colour to perfection. The smaller bunches near the top and near the bottom never fail to finish in a satisfactory manner. The smaller about the middle of the house finish fairly well, but the larger are always reddish. They are not deficient in flavour, and those most concerned praise them. Still we feel chagrined at the redness. If it is overcrop-

ping, why do the top and bottom bunches colour so well? If it is overcropping, why do they maintain unimpaired their fertility?

The glass is in large panes and the laps puttied, hence it may be concluded that want of ventilation is the evil. Near the ventilators the fruit is always black, far from the ventilators the fruit is red. The incoming air is exhausted long before reaching the middle of the house, and the middle spurs languish in consequence. True, each part of the plant is in sympathy with every other part; were it otherwise matters would be worse.

Another thing—the largest bunches are generally reddest. Does this teach that big bunches make greater demands than the local foliage is able to meet? It looks like it; and more than one prizetaker has won his laurels by reducing the size of his bunches. I was once told by one who should know, that the grower who has been styled "Champion of the North" in his palmy days habitually "shouldered" his large bunches, and these reduced bunches always produced the largest best-coloured berries, and secured the prize at many a southern show. This may be so, but I never can find heart to "shoulder" our best bunches. The big panes and the puttied laps might perhaps be remedied, however.—SINGLE-HANDED.

ROGIERA GRATISSIMA.

ONE of the prettiest species of the genus *Rogiera* is that of which a small lateral shoot and flowerhead are shown in fig. 30. It is admirably suited for a greenhouse, and with ordinary careful



Fig. 30.—*Rogiera gratissima*.

attention to its cultural requirements it flowers freely during the summer. The only objection that can be urged against the plant is that it is slightly straggling in habit, but a little judicious pruning will go far to obviate this disadvantage. The flowers are of a soft pinkish white tint and wax-like texture, and, moreover, possess a most agreeable fragrance, rendering them pleasing either on the plant or when cut.

The culture, though not difficult, requires the care of a judicious plant-grower. One point of particular importance is, that the soil and pot be sufficiently well drained to permit the free passage of the water, as stagnant moisture soon produces a most injurious effect on the plant. A compost of light turfy loam, a little peat, and a good proportion of sand is the most suitable, exercising care to avoid overpotting.

It was found some years since on the mountains of Guatemala by M. Ghiesbreght.

THE PHYLLOXERA IN FRANCE.—From a report on the means employed in France for protecting the Vine from destruction by the

Phylloxera, by Mr. C. H. Perceval, H.M. Consul at Bordeaux, we take the following interesting extract:—"The information which I have gathered on this subject from official and other sources tends to reduce the methods used to the following three:—Firstly, submersion of the vineyard when practicable; secondly, by employing insecticides; and thirdly, where the vineyards have been destroyed, by the plantation of American varieties of Vines whose roots offer more resistance to the attack of the insect. M. Armand Lalande, the President of the Chamber of Commerce of Bordeaux, proprietor of extensive vineyards in the Médoc, a gentleman to whom I am much indebted for the information and assistance which he has been kind enough to afford me in drawing up this report, addressed a meeting of that body held in March last on various topics, and I translate the following from his remarks regarding the Phylloxera:—"The Chamber of Commerce has not ceased to show the extreme importance which it attaches to all the means employable in combating this dreadful scourge. Of the 2,200,000 hectares which composed the vineyards of France, 500,000 are destroyed, 500,000 others are greatly attacked; it is a loss of more than three milliards to the country. The Gironde is one of the departments which has suffered most; one-third of the vineyards are destroyed, another third is badly attacked. We must admit with sorrow that the very sources of our commerce and of the well-being of our southern population are most seriously compromised. Still we have great hopes that, by energetic and intelligent efforts, we may be enabled gradually to arrest and repair the evil. For the very important vineyards of the Gironde, where submersion is possible, it is a sure remedy, which is generally employed, and with invariable success. In the cases of vineyards already destroyed, the remedy seems to be to reconstitute them by planting American Vines as stocks for grafting French cuttings on, which plan has been the subject of satisfactory and conclusive experiments for the last few years, especially in Languedoc. Where the Vines are not too far gone, a judicious use of sulphur of carbon is a certain means of preservation, and, in most cases, practicable, owing to the moderation of the cost." He then states that he bases his opinion on astonishing and conclusive results, which he has observed in immense vineyards in Languedoc, and also in others of the Gironde, and proposes that steps may be taken to hold an international congress on Phylloxera in the autumn." The Congress is to open on September 5th. As we intimated last week, another Viticultural Congress meets in Milan next week. Mr. Perceval gives some valuable details on the various methods of treating the disease."

DISBUDDING CHRYSANTHEMUMS.

CULTIVATORS of the Chrysanthemum might safely be divided into two classes: the one grows for cutting and decoration, the other for exhibiting. Some of the former are very careless in many respects in relation to disbudding, while the latter is and must be most anxious and careful, as upon this depends to a large extent the success of his labours. The two have in view very dissimilar objects, and follow two distinct systems of cultivation. In gardens where these autumn flowers are grown little or no heed is given to disbudding, or it is carelessly performed, and perhaps at a stage when the plants would receive no benefit from the operation.

Chrysanthemum cultivation has increased considerably during the past few years, nevertheless the plants are only poorly grown in many establishments. If these growers would follow in some details the system pursued by exhibitors they would profit considerably. Disbudding to a certain extent is as necessary when growing for decoration as for exhibition, only the former need not disbud so severely and devote all the energy and strength of the plant to the production of one or two blooms. The exhibitor desires size as well as other qualities, and the strength of the plant must be concentrated, therefore careful and judicious disbudding is necessary. It is equally so with the other if he requires a good bush carrying a number of flowers. It must be early decided how many shoots the plant is to carry, pinching the points out of the shoots in its early stages until the required number are formed, say from six to twelve, or as many more as the cultivator considers essential. These shoots must be allowed to extend, and all side growths from the axils of the leaves be removed as they appear as well as suckers. When the plant has one or two stems they often show a bud during the month of May; this must be removed.

The month of July is rather a critical stage, and many, especially beginners for whom these notes are intended, fail to produce fine flowers. The plants during that month show what is known to Chrysanthemum growers as the July bud. This bud is useless. Chrysanthemum experts glancing through the plants

about that season of the year quickly form an idea if they are right for producing good blooms provided all goes well afterwards. When the bud alluded to is appearing the points of the shoots should at once be removed, and all the side shoots except the most promising one, which should be encouraged.

If the plants have not sufficient shoots they can form two or three shoots from this bud to flower eventually on the crown bud, which is the next that appears. Remove the three shoots that would spring from beneath and grow some 6 or more inches in length, and then form other buds which are known as the terminal bud. If the flowers are taken from this bud the centre one must be selected, and the small buds surrounding it must be removed. When growing the plant with one or two stems (incurved varieties are alluded to), it is not always wise to select the crown bud recommended by many. If the plants are very strong and the varieties inclined to be coarse and the crown bud is selected, the flowers are sure to be coarse, or what has been termed overgrown. Some may be ready to contest this point and assert that the crown bud produces the finest flowers. I am willing to grant that many fine well-shaped flowers are produced from the crown bud of the Mrs. George Rundle type, and it will with many other varieties produce deformed, ragged, and worthless blooms. An intimate knowledge of the plants and whether the blooms they produce are liable to be coarse or naturally come well-shaped is requisite in attaining successful results. The cultivator should also grow the same variety in both ways and then note the difference. It is difficult in this, as in many other operations connected with gardening, to lay down minute rules for guidance, which can only be attained by experience and intelligent observation.—W. B.

SHROPSHIRE FLORAL AND HORTICULTURAL SOCIETY.—AUGUST 17TH AND 18TH.

THE above Society held their annual Exhibition in the Quarry Grounds, Shrewsbury. The morning of the Exhibition was fine, but rain fell heavily before noon, yet the public thronged into the grounds to inspect the Show. In few provincial towns is an horticultural society so popular with the people as at Shrewsbury. The inhabitants of the town look upon the day as a general holiday, and the stranger is surprised to see the main streets leading to the Show grounds decorated with flags. The Society is in a very flourishing condition, and has during the present year erected some handsome gates at the entrance to the Quarry Grounds. Some idea of the magnitude of the Exhibition will be formed when it is stated the number of entries was over 1400.

The stove and greenhouse plants, considering the lateness of the season for many flowering plants, were shown in grand condition. The open class is specially alluded to, and the plants this year are much better than any we have hitherto seen at this Society's Show. In the open class for twenty plants, flowering and foliage, two fine groups were staged by Mr. J. Cypher, Cheltenham, and Mr. Tudgey, gardener to J. F. G. Williams, Esq., Worcester. The two collections were so nearly equal in point of merit that it was a difficult matter for the Judges to decide which was most worthy of the premier position. After much consideration they decided in favour of Mr. Cypher, who had fine plants of *Latania borbonica* 8 or 9 feet through, *Gleichenia flabellata*, *Cordyline indivisa*, good; *Thrinax elegans*, *Pritchardia pacifica*, *Croton Disraeli*, 5 feet through and well coloured; *C. majesticus*, very large; *C. Queen Victoria*, flat but remarkably well coloured; *Ixora Cypheri*, *Lapageria alba*, well flowered; *Allamanda nobilis*, and *A. Hendersonii*, both superbly flowered; *Bougainvillea glabra*, *Stephanotis floribunda*, and *Ixora amabilis* were flowering well. Mr. Tudgey was also strong in fine-foliage plants, and his flowering plants were remarkably satisfactory. *Croton Andreanus* with its large bold foliage was very fine; *Anthurium Schertzerianum*, large and very attractive. The specimen of *Dipladenia Brearleyana* was one of the finest plants we have seen of this variety, and it was flowering profusely. In the class for nine plants with not less than five in bloom five collections were staged. Mr. F. Perkins, Leamington, took the lead with creditable plants of *Bougainvillea glabra*, *Statice Blucherii*, *Dipladenia boliviensis*, and a good specimen of the *Gloriosa Plantii* superba. Mr. Farrant, gardener to Mrs. Juson, was second, having a good *Coccos Weddelliana*, and a fresh but rather small plant of *Erica æmula*. Mr. W. Pratt, gardener to Lord Hill, Hawkstone, obtained the remaining prize, showing a good *Nepenthes Hookeriana* among others. In the class for six plants, not less than four in bloom, open only to amateurs, Mr. H. Owen, Shrewsbury, and Mrs. Wace obtained the prizes in the order as named.

Ericas were not shown in large numbers, but the quality of those staged was all that could be desired. Mr. J. Cypher took the lead in the class for six plants, and staged fresh and well-flowered examples of *E. Aitoniana*, *E. Marnockiana*, *E. Irbyana*, *E. Austiniana*, *E. æmula*, and *E. Turnbulli*. Mr. Tudgey was second, having a very good plant of *E. ampullacea Williamsii*, the other plants being rather uneven in size.

Ferns were not numerous, but the exotic species were in excellent condition, while the class for hardy Ferns was represented by very small plants that need no further comment. For nine exotics there

were only two competitors, Mr. Cypher and Mr. Tudgey, who took the prizes in the order named. The plants in the first-prize lot were healthy and well grown, and amongst them were good specimens of *Alsophila australis*, *A. elegantissima*, *Davallia Mooreana*, *Adiantum cardiochæna*, *A. trapeziforme*, *Gleichenia spelunæ*, *G. dichotoma*, and *Dicksonia antarctica*. Mr. Tudgey's plants were larger but not so fresh, the best being *Cibotium regale*, *Gleichenia Mendelli*, and *Microlepia hirta cristata*, very fine. In the corresponding class for six plants Mr. Warrender, gardener to Sir T. C. Meyrick, Bart., took the lead with good well-grown plants of *Alsophila excelsa*, *Microlepia hirta cristata*, and a good *Nephrolepis exaltata*. Mr. Pearson, gardener to Lord Berwick, and Mr. Farrant obtained the remaining prizes, both showing well. Messrs. L. Burd, H. Owen, and Mrs. Wace were the prizetakers in the class for four plants.

Palms were well shown, some good and fresh specimens being staged. The competition was keen in the class for six distinct varieties; Messrs. Tudgey, Cypher, and W. Pratt taking the prizes in that order. The first-prize collection was much smaller than those shown in the second, but in much better condition; Mr. Tudgey's best plants being *Geonoma gracilis*, *Kentia australis*, *Geonoma princeps*, and *Cocos Weddelliana*.

In the class devoted to *Draænas* only two collections were staged by Mr. Pratt and Mr. Warrender. The first-prize plants being good, and included well developed specimens of *D. regina*, *D. Taylori*, and *D. Baptistii*, fine. Mr. Warrender's examples were a little smaller but in equally good condition. *Caladiums* were fairly represented, but the plants were small. Mr. Farrant staged creditable plants of Prince Albert Edward, Napoleon III., Edward Andry, and Princess Royal. Messrs. Jones & Sons followed with small but neat plants; Mrs. Shuker being third. *Coleuses* showed a marked improvement over those staged at the Society's previous exhibitions. The majority of the plants were of pyramidal form, but rather too closely trained. The first prize was obtained by Mr. Pursar, gardener to J. Watson, Esq., for good plants of Lord Falmouth, Ajax, and Exquisite. Mrs. Shuker was a good second, and Mr. Salter, gardener to G. D. Lees, Esq., third. In the amateurs' class for three plants Messrs. H. Owen, L. Burd, and Major Palchett were the prizetakers. The classes devoted to *Fuchsias* were well filled, but the plants were not in first-rate condition, the only creditable collection being that shown by Messrs. Pritchard & Sons, Shrewsbury. These plants were not large but well flowered, the best being *Luey Mills*, *Blushing Bride*, *Charming*, and *Crimson Globe*. The plants staged in the amateurs' class were better than the second and third lots in the class referred to, Messrs. Owen, Burd, and Mrs. Wace obtaining the prizes. The competition was good in the classes devoted to *Begonias*, and considerable improvement has been made in their culture round Shrewsbury during the past two years. The Rev. J. H. Charter, Mr. R. Milner, gardener to the Rev. J. D. Corbett, and Mr. Bremmell, gardener to Col. Forestier, were the successful exhibitors in the class for six plants. In the class for three the same exhibitor was again first, followed by R. W. Withers, Esq., and R. Blythe, Esq.

Zonal *Pelargoniums* were very satisfactory, and were staged in good numbers. In the class for six double varieties, distinct, Messrs. Oldroyd & Sons obtained the premier award, having good plants of *Wonderful*, *Asa Grey*, *Raspail*, and *Madame Thibaut*. Messrs. Jones and Sons were second with *Leamington Lassie*, *L'Année Terrible*, *Prince Alfred*, and *Madame Thibaut*. Mr. J. R. Jones was awarded the remaining prize. Messrs. Owen and J. B. Hudson took the prizes in the class for three plants. For six Zonals with single flowers Messrs. Jones & Sons staged the best plants, the most notable being *La Belle*, *Beauty of Wilts*, *Mrs. Findlay*, and the Rev. F. Atkinson. Mr. J. R. Jones was second, having good plants of *John Gibbons*, very bright, and *Lady Sheffield*. Messrs. Oldroyd & Sons were third with smaller but neat specimens. In the class for three plants the same exhibitors and in the same order obtained the prizes as in the corresponding class for three doubles. The classes devoted to *Achimenes*, *Gloxinias*, *Balsams*, and *Petunias* need no special note further than the prizes offered were well contested for; Messrs. L. Burd, Shuker, R. W. O. Withers, R. J. Niven, and H. Owen being the principal prizetakers.

Table plants are always well represented at Shrewsbury, and this year the seven collections in the class for twelve plants were especially fine. The Judges found some difficulty in making the awards. They finally decided in favour of Mr. Cypher being first. The plants were not more than 10 inches or a foot high, the best being *Croton elegans*, well coloured; *C. mutabilis*, *C. angustifolius*, bright; *C. majesticus*, *Grevillia robusta*, *Cocos Weddelliana*, *Aralia Veitchii*, *Aralia gracillima*, *Geonoma gracilis*, and *Phœnix palmeola*. Mr. Pratt was second with excellent specimens about the same size, and Mr. Warrender was third with larger plants.

In the class for fifty miscellaneous plants grown in 5-inch pots, not less than thirty in bloom, four collections were exhibited, and arranged on low staging about 3 feet 6 inches wide. Messrs. Jones and Sons took the lead with a neat and choice assortment of *Crotons*, *Palms*, *Begonias*, foliage and flowering; *Gloxinias*, *Ericas*, *Ferns*, and many other plants. Messrs. Pritchard & Sons were second with a neat lot, differing only in having a number of *Vallota purpurea* and *Lilium auratum* intermixed, which stood well out of the more dwarf plants, and imparted to the collection a pleasing effect. Mr. Farrant was third.

Groups arranged for effect were a new feature, and attracted much

attention. The space covered was 100 square feet, and the groups were arranged in nearly square form down the side of a long tent. The whole of the collections sloped gradually from the back to the front, and were very effective, and a great success considering it was the first attempt. Seven or eight groups were arranged, and the first and second were nearly equal in point of merit. The premier position was, however, at last adjudged to Messrs. Pritchard & Sons. The groundwork was composed of *Adiantum cuneatum*, *Coleus*, *Heaths*, *Zonal Pelargoniums*, with light *Palms*, *Dracænas*, *Aralias*, *Crotons*, and other suitable plants rising above the groundwork, the front and sides being edged with *Lobelias*, *Gloxinias*, small *Adiantums*, and *Coleuses*. The second-prize group, belonging to Mr. Pratt, was a good one, and not many points behind the first. It was rather short of *Ferns* in the groundwork, the arrangement being much the same as the first, only *Pancratiums* and *Lilium auratum* were freely mixed through the group. Some *Cockscombs* near the front was objected to by the Judges, otherwise this group would have been placed first. The third prize was obtained by Mr. F. Perkins, Leamington, and its most striking feature was the well-grown plants of *Rhodanthe Manglesii*. Messrs. J. Dickson & Sons and Messrs. Jones & Sons also staged creditable groups.

CUT FLOWERS.

These were shown in large quantities and in good condition. In the class for twenty-four cut *Roses* three collections were staged; the blooms were not large, but fresh and even. Mr. G. H. Catlin, gardener to W. Henderson, Esq., took the lead, followed by Messrs. J. Dickson & Sons, and Mr. J. H. Berrington, Ludlow. For eighteen single blooms Mr. Davies, Ludlow, and Mr. J. Lambert, gardener to C. G. Wingfield, Esq., were the successful exhibitors, both staging fresh but small blooms. Three classes are devoted to *Dahlias*, and the blooms staged were large, bright, and beautiful. In the class for thirty-six two collections only were staged by Mr. W. Shaw, Blakebrook; and by Mr. Lawrence, gardener to J. Brodenham, Esq. The first collection contained good flowers of *Burgundy*, *Alexandra Cramond*, *Victory*, a bright yellow flower; *James Service*, good dark; *Peacock*, *Julia Wyatt*, *John Bennett*, *Captain Webb*, *James Cocker*, and *Countess of Pembroke*. The same exhibitor was again first for twenty-four blooms, having good flowers of the Rev. J. B. M. Camm, *John Lamont*, and *Clara*. T. Speake, Esq., Bradenheath, was second, having good blooms of *Monarch* and *Henry Walton*; Mr. A. Meyers being third. For nine blooms C. M. Cambell, Esq., was awarded a first prize. Mr. W. Shaw was the only exhibitor in the class for thirty-six spikes of *Gladioli*, and staged an excellent assortment, for which he was awarded the first prize. Messrs. Pritchard were the only exhibitors in the class for eighteen spikes, and the collection well deserved the first prize awarded for it. *Asters* were good, the principal prizetakers being Messrs. Meyers, Milner, W. Shaw, Cambell, R. E. Warren, and Mrs. Shuker. *Stove and greenhouse cut blooms* were well shown, some six boxes being staged. Mr. F. Perkins was first for twelve, Pritchard & Sons second, and Mr. Salter, gardener to G. D. Lees, Esq., and Messrs. Jones & Sons equal third. The first-prize box contained some good bunches of *Dipladenia amabilis*, *Lapageria alba*, *Eucharis*, *Ixora Williamsi*, *Bouvardia elegans*, and *Erica obbata*. Messrs. R. C. Withers and G. Townsend took the first and second prizes for twelve trusses of herbaceous plants; Messrs. Perkins, Jones & Sons, and W. Shaw securing the prizes for *Phloxes*. *Stocks* were very fine, and grand spikes of flowers were shown. Messrs. G. Townsend, Pritchard, and Jones & Sons obtained the awards for twelve distinct varieties; Messrs. G. H. Berrington, Ludlow, Townsend, and W. H. Harrison for nine spikes. Mr. Edwards, gardener to Sir F. Smythe, took the lead for *Pentstemons*, and staged handsome examples of twelve varieties. The cut blooms of *Zonal Pelargoniums* were bright, especially those shown by Messrs. Pritchard & Sons, including Dr. Denny, Commander-in-Chief, Henry Jacoby, and *Rigolette*. Mr. S. Rudge, gardener to T. S. Eyton, Esq., was second; and Mr. J. R. Jones third.

The bouquets were remarkable for their freshness and beauty, Mr. Cypher taking the lead for one ball or hand bouquet, closely followed by Mr. J. R. Jones and by Messrs. Jones & Sons. The same exhibitor was successful for one bridal bouquet, Mr. J. R. Jones being third. The prizes for three buttonhole bouquets were secured by the same exhibitors, and in the same order. Mr. Cypher obtained the first prize for a stand of cut flowers suitable for table decoration; the arrangement was very light and neat. Miss Weeks was second, and Messrs. Jones & Sons third.

FRUIT.

The show of fruit was large and the quality good. For six bunches of black *Grapes* in three varieties Mr. W. Pratt was first with well-coloured and highly finished large bunches of *Lady Downe's*, *Black Hamburg*, and *West's St. Peter's*. Mr. Hannagan, gardener to R. G. Naylor, Esq., Hoolton Hall, Cheshire, was a close second with large berries and bunches of *Mrs. Pince* and *Black Hamburg*, but scarcely finished. Mr. W. Earp, gardener to F. Stainer, Esq., also showed well, and was awarded an extra prize. For four bunches of white *Grapes*, two varieties, Mr. Earp was first with highly finished *Foster's Seedling* and *Buckland Sweetwater*. Mr. F. Hawkesford, gardener to Sir V. R. Corbett, Bart., was second with good bunches of *Museat of Alexandria* with large berries but not quite ripe. For two bunches of black *Grapes* (amateurs) Major Palchett and T. Southam, Esq., secured the prizes. For the collection of twelve dishes of fruit, not

more than two varieties of Grapes, Mr. Pratt was first with some splendid fruit. Mr. Hannagan was a good second, only being a point or two behind. Mr. Milner was third. The best dishes in the first collection were the Black Hamburg and Muscat of Alexandria Grapes, Pine, Apricots, Brown Turkey Figs, Elruge Nectarines, and a good dish of Pears.

The Grapes in the second collection were very good, and with large berries; Pitmaston Nectarines large, and good Royal Charlotte Peaches. In the collection of nine dishes (Pine excluded) Mr. Pratt was again first, having fine Grapes. Mr. Lambert was a close second with a fine dish of Apricots and good Grapes, but scarcely ripe. Mr. Warrender was third. The competition in this class was very keen. Mr. Pratt was the only exhibitor in the class for one Pine, and staged a good Queen. Mr. Shaw, Kidderminster, and Mr. Warrender obtained the prizes for one dish of Peaches. The same exhibitor was first for a dish of Nectarines, and Mr. Lawley, gardener to A. Darby, Esq., second, and Mr. Milner third. Messrs. Earp, C. Taylor, gardener to R. C. Cholmondeley, Esq., and Mr. R. Cooper, Bridgnorth, were the prizetakers for Apricots. Mr. S. Jones, gardener to W. Hayledine, Esq., took the lead for green or yellow and purple or red Plums. Messrs. Owen, Hannagan and Pratt were the prizewinners with green-fleshed Melons; and Messrs. W. H. Harrison, Owen, and Earp with scarlet-fleshed Melons. Messrs. Hannagan, Pearson, J. McLean, gardener to Lady Cotes, were the principal exhibitors of Cherries.

VEGETABLES.

These were of superior quality, and the competition was keen in the several classes. In the class for a collection of eight dishes thirteen lots were staged, and all good; the premier prize being awarded to Mr. Lambert, who staged a good dish of Brussels Sprouts, Conqueror Tomato, Canadian Wonder Beans, good Autumn Giant Cauliflowers, Veitch's Black-leaved Beet, International Kidney Potatoes, very fine, Telegraph Peas, fine James's Intermediate Carrots, and capital Major Clark's Red Celery; Mr. Milner second, and Mr. Pratt third, with nearly equally meritorious collections. There were twenty entries in the class for six dishes of Potatoes, and the examples were clean, large, and well-shaped. Mr. Milner was first with Gloucester Kidney, Vicar of Laleham, International, Centennial, Beauty of Hebron, and Trophy. Mr. Bremmell was a close second, showing Porter's Excelsior, Blanchard, and others similar to the first-prize varieties. Mr. A. Myers was third. For three dishes over twenty collections were again staged, Mr. G. Berrington, Ludlow, being first; Mr. Pursar, gardener to J. Watson, Esq., second; and Mr. S. Bremmell third. Mr. J. Bain, gardener to Sir C. R. Broughton, Bart., was first for a dish of Tomatoes; Mr. Pursar and Mr. Pearson second and third. Mr. Bain took the lead for Peas with Ne Plus Ultra; Mr. Bremmell second with Telephone; and Mr. W. Davies third, an enormous quantity of Peas being staged. Onions were grand, Mr. Hawkesford taking the lead for spring varieties, and Mr. Pearson for autumn varieties. Mr. Lambert was first with Cucumbers, showing a fine pair of Carter's Model. Mr. Myers and Mr. Davies were second and third. Messrs. H. Cross, Lambert, and Lawrence were the successful exhibitors for Cauliflowers, and Messrs. Milner, McLean, and Nevin for Celery. For French Beans, Parsnips, Carrots, and Turnips the chief prizewinners were Messrs. J. Watson, Lambert, Pursar, and Brown. A special prize was awarded to Mr. R. Wildblood for a good dish of Pride of America Potatoes.

Miscellaneous Exhibits.—Messrs. F. and A. Dickson & Sons, Upton Nurseries, Chester, exhibited a good collection of small decorative stove and greenhouse plants and a very fine group of young Conifers, principally choice kinds. Messrs. J. Dickson & Sons, Newton Nurseries, Chester, sent some Vines in pots, which were remarkable for strength, short-jointed wood, and plump eyes, also a number of fine young Figs in 6-inch pots. Many of the little bushy plants had a dozen or more fruits, though only about seven months old. Messrs. Pritchard & Sons staged an assortment of small stove and greenhouse plants. Mr. A. Myers, Sutton Lane Nursery, Shrewsbury, had a similar collection of plants; and Messrs. Jones & Sons also contributed a variety of plants to the Exhibition.

A large tent was devoted to the productions of cottagers, the side stage being well filled with vegetables, and the centre with cut flowers, window plants, and hardy fruits. The vegetables were especially worthy of note, and the soil in the neighbourhood of Shrewsbury must be particularly favourable. It is stated there were over eight hundred entries for the classes devoted to cottagers, and this is considerably under the number of last year, owing to the entrance fee of 1s. being now required. It is to be hoped that this Society will encourage the cottagers' portion of their fine Exhibition by again allowing a free entrance.

Great credit is due to the exertions of the Hon. Secs., Messrs. H. W. Adnitt and W. W. Naunton, and the able Committee, for the business-like manner in which the work of the Society is carried out.

TOMATOES UNDER VINES.

FULLY a year ago there was some discussion in the Journal as to whether Tomatoes could be grown profitably on the back walls of lean-to vineries, some correspondents holding that it could not be done, others taking the opposite view. Some time ago we had fine crops from plants against our back walls. The Vines were only a year or two planted, and hence, before the canes had

time to reach the top and obstruct the sun's rays, the Tomatoes were in good health, had a crop of fruit set and swelling off, and there was no great trouble in ripening fine Tomatoes, even after the light became obscured. So long as matters were in that state we felt inclined to think Mr. Muir right and his opponents wrong, although his remarks were rather too disparaging in tone. Now, however, the roof is covered densely, and we find the Tomatoes on the back wall, elevated as they are near the roof, are a complete failure. To be sure we have in Scotland, at least in the mild and counties, had but little sun, but we do not think matters would have been very different if we had been favoured with bright sunshine, for little of it could possibly reach the Tomatoes.

Whether the impression be right or wrong (we have mislaid some numbers of the Journal and cannot, in consequence, speak with certainty), we still have the impression that Mr. Muir attributed his success to keeping the foliage so thin on the roof that light enough penetrated to secure the well-being of the Tomatoes underneath. Not being a believer in sacrificing even a problematical amount of Grapes for even a good crop of Tomatoes, and believing that Vines are benefited by being allowed to carry as many leaves as possible without absolute crowding, we allow the Vines to fill all available space. The consequence of this is no Tomatoes. But, according to Mr. Muir's directions, we are led to believe that he, too, covers his roof densely in order to secure well-coloured Grapes. Are our impressions incorrect? Does Mr. Muir grow good crops of Tomatoes under a roof densely shaded with Vine leaves? We are concerned about the answer; for we find that employers, our own among the number, who believe but do not understand what they read, think that Tomatoes can be grown under the dense shade of robust Vines, and are disappointed when they read of others doing it and find that their gardener has not capacity for the—shall I call it, feat?—A SCOTCHMAN.

EWENNY PRIORY.

THIS estate, the seat of Col. T. Picton Turberville, is situated near Bridgend, one of the most beautiful and fertile agricultural districts of South Wales. Unlike many parts of Glamorganshire, the land around Ewenny is all of an arable character, and no better part could be found in which to gain a knowledge of Welsh farming operations, and the widely respected owner of the Priory is a gentleman well known for the substantial support he gives to all the leading agricultural societies in the country. But it is not to these alone that he devotes his time and money, as his practical knowledge is well shown in the excellent state of the land, farm houses, cottages, &c. As one instance of the owner's thoughtful care, we may notice that the weather forecast for the day is telegraphed from London every morning and posted up in the most accessible part of the estate. During the hay and grain harvests this cannot fail to be of much benefit to those engaged in these operations.

In proceeding towards the Priory the road is a truly historic one of the old English description, with beautiful hedgerows, abundance of wild flowers, and a good footway. Long before the Priory is reached there are two erections seen of a widely different kind. The one is the modern mansion, the other a grand ruin of the old Priory. History says the latter was built in 1111, and the church connected with it, which is still that of the parish, is being judiciously restored by the present owner. The ruins and the mansion are almost in one, and must be highly interesting to those of an antiquarian or archaeological turn of mind.

Our chief object was, however, the garden, and, above all, the orchard houses, for which Ewenny is justly celebrated. One large span-roofed house and another lean-to are filled with fruit trees in pots, and these were just at their best at the time of our visit. The trees are chiefly Nectarines, Peaches, Plums, and Pears. They are mostly about 5 feet high. The pots are from 10 to 15 inches in diameter, and they altogether number about fifty. The first glance at the trees proves them to be in excellent health—not a spotted leaf or an insect being visible, and the crops are surprising. On a small tree of Rivers' Early Alfred Peach there were six dozen of good fruits, and Mr. Hawkins, the skilled grower, speaks highly of the variety as a sure cropper. Next to this there was one of Rivers' Purple Gage Plums which had sixteen dozen fine fruit on it last year, and this season they number ten dozen. This is considered the finest flavoured of all Plums. Pears were equally fine, a small sprig of a tree of Brockworth Park bearing fourteen fruit, each more than 8 inches in circumference; Louise Bonne of Jersey had forty fine fruits. These are finer than we have seen in the open air against walls or in any other position. Some samples of Pears were extremely fine. Three varieties were especially noteworthy—Doyenné du Comice, five fruit of which weighed 4 lbs. 3 ozs.; Pitmaston Duchess, and Duchesse d'Angoulême, one

fruit of each weighing 1 lb. 15 ozs.; and Beurré Diel, five fruits making a total of 4 lbs. 12 ozs. The trees from which these were gathered are very small, but, like all the others, they are in excellent health. Beurré Hardy was also fine in pots, the fruits being remarkably clean.

Against the back wall of the lean-to orchard house three Peach trees are trained. Barrington is very fine, also Prince of Wales and the Oldenburgh (Elruge) Nectarine; and the trees in pots are on a par with those in the other house—clean, healthy, and fruitful. We may look in vain for such fruit out of doors in our walled gardens; and yet these trees are not expensive to grow, as they have little fire heat and they do not need much training, supplying water at this time being the heaviest part of the labour. After the fruit has been gathered the trees are moved out to the open air, and any which require potting are shifted a little time before the leaves fall. Gritty soil from the roadside is employed, and one barrowload of horse droppings is added to every four of soil. Old bones from the house are broken up and used as drainage. The trees in pots are not forced, but start into growth naturally under glass.

In this system of growing trees Mr. Hawkins has the very highest confidence, and well he may, as everyone must envy those in his position with such large crops from small trees in a fruitless season out of doors. The same trees have been fruiting for fourteen years, and they have no appearance of being exhausted. A short time since Mr. Rivers of Sawbridgeworth informed us that the trees with which the late Mr. Rivers originated this excellent system of fruit-growing twenty-eight years ago are still fruiting in the same pots, and this year they are as vigorous as ever. The orchard house at Sawbridgeworth is 100 feet long by 24 feet in width, and from this over four thousand fine fruits are gathered annually, and these are widely different and superior to what can be had from the open walls at the same place.

Besides the interesting orchard houses at Ewenny there are some good lean-to vineries and span-roofed plant houses in the same garden. The crops of Grapes are very heavy, and the Muscats finer in colour than any we have seen for a considerable time. Stove plants are also well grown, and, like the fruit, are great attractions at the local shows. The vegetable quarters are clean and well stocked. The flower garden, which mostly surrounds the house, is very tastefully arranged; the beds are chiefly cut out on the grass.

To the east of the mansion there is another kitchen garden, and here there are some very old glass houses which may well be associated with the old abbey.—M. M.

A HINT FOR ROSE-GROWERS.

IT is generally known that nearly all standard Roses were killed by the frost of last winter, and in many places nearly all the dwarf Roses were either killed or much injured. By a very simple expedient we have for years saved ours; and last spring, when Mr. Fisher of the Worcester Nurseries saw our Roses being uncovered and pruned, he said, "Had we fallen on that simple plan it would have been worth £1000 to my employer." We have no standard Roses; ours are grown for cut blooms, and are mostly on the Manetti stock. In October, when the wood is ripe, we take a handful of common Bracken (*Pteris aquilina*) by the stalks and tie them round each bush, the Fern stalks upwards, and draw a very little earth round to keep them in their place during windy weather. When the buds begin to swell we remove the Bracken and prune the Roses. We had 42° of frost here last winter, and of some eight hundred bushes did not lose one that was properly covered as I have attempted to describe, while a few that were in detached parts of the ground and were not covered were killed in every case.

I have seen instances where earth was drawn up around the bushes to save them, but it failed, while for the last three excessively severe seasons we have lost none that were properly sheltered by the Bracken.—WM. THOMSON, *Tweed Vineyard*.

MITRARIA INODORA FLORE-PLENO.

PURE white flowers are always welcome for various decorative purposes, and they are certainly not over-plentiful amongst hardy plants during the months of July and August. Two of the most useful of border plants for affording white flowers during the period named are the very old *Achillea Ptarmica* flore-pleno, and the comparatively new *Mitraria* represented in the annexed engraving (fig. 31). Flowers of the latter produced by young plants in not over-rich soil are somewhat disappointing, being semi-double and having a ragged appearance, but under more favourable conditions the blooms are as large and symmetrical as Pompon

Chrysanthemums. Of this character we recently saw them in a large bed in the princely establishment of the Duke of Westminster at Eaton Hall. Mr. Selwood spoke in terms of great approval of the usefulness of this plant for affording cut flowers that prove acceptable for various purposes of decoration, and he consequently had a large number for maintaining the supply. For producing fine flowers the plants need good soil, and this being afforded they may be left pretty much to themselves, so freely do they grow and flower. All who desire a large supply of



Fig. 31.—*Mitraria inodora* flore-pleno.

white flowers during the summer can scarcely err by growing largely the two hardy plants alluded to. We give prominence to the *Mitraria*, as being less known than the *Achillea*.

CHOICE PEAS.

FROM what follows it will be seen that the varieties of dwarf or medium height are not much valued here, and this I may observe is due to their not being so satisfactory as the taller varieties, which for one reason have the pods at a considerably greater height from the ground, and are consequently safer from pheasants. Another reason is that the tall varieties afford a better and more certain return than the others, withstanding drought quite as well and excessive wet very much better. For first early the dwarf and medium-height Peas cannot well be dispensed with, as to have Peas early they must be grown in quarters that preclude the tall varieties.

To insure a daily supply of Peas from as early to as late a season as possible, which I have to do, it is not essential to grow many varieties, a few good sorts will do this much better than a number; yet it is not advisable to rely entirely upon one kind, but to grow two at least of each of the sections into which Peas are generally divided—viz., earliest, second early, general, and late crops. In each of these I shall name two varieties, and shall be glad to know if other gardeners have found any superior for free cropping and good quality.

Earliest Varieties.—Dicksons' First and Best and William I., both cropping well, are of fine quality, and have hardy constitutions. If there is a preference it should be given to the latter on account of colour, but this only pleases the eye. These require sticks with me of $3\frac{1}{2}$ feet above ground, 4 feet between rows.

Second Early Varieties.—Laxton's Alpha, a blue wrinkled Marrow of the finest quality; and Dr. Hogg, a green wrinkled Marrow highly flavoured. These need sticks 5 feet in height.

General or Main Crop Varieties.—Criterion, a splendid cropper, after the type of Ne Plus Ultra, and a grand Pea in every respect; and a companion is found in Huntingdonian, which is a form of Champion of England. It is of little consequence which is grown, as they are as near alike as two Peas well can be, and they are both of excellent quality. I have found a fault in the latter which I have not noticed in Criterion, dry as the season has been—viz., in being subject to mildew, and soon becoming too "old." They need sticks 6 feet in height, which despite the drought have been overtopped. Telephone is probably the finest quality tall Pea ever raised. Telegraph is a fine tall Pea and of better colour, continuing longer in season than Telephone. The Baron, which I have grown this season for the first time, promises to be a grand main crop variety; it is certainly a capital cropper, bearing a dozen pods mostly in pairs, containing nine to a dozen peas of good size and fine green colour, being in fact a green Marrow of good quality. The pods are about 5 inches long, in some instances an inch more, filling well. The plant is of moderately strong growth, and needs sticks 6 feet high.

Late Varieties.—Ne Plus Ultra is well known, being an abundant bearer, with peas of a deep green colour and delicious flavour, affording a supply for some time successionally. This is the very best of the late Peas, requiring sticks 7 feet high. Emperor of the Marrows, which may be classed as a fine form of British Queen, is of strong growth, having fine pods filled well with large peas of superior quality. It requires sticks not less than 7 feet above ground.

Of the "medium-height" varieties there is none better as first early than those already named—viz., Dickson's First and Best and Laxton's William I. Second Early—Eley's Essex Rival, a large good Pea; and Advancer, a green wrinkled sort, good both in quality and cropping. Main Crop.—Dr. Maclean, a blue wrinkled Marrow; a capital cropper and of good quality. Marvel, which was sent to me in 1874 by Mr. Laxton for trial, is a good white wrinkled Marrow, producing its pods in pairs, usually with nine or ten large peas of exquisite flavour. Veitch's Perfection is still unsurpassed in its class; and Stratagem promises to be good alike for the main and late crops. Late.—Maclean's Best of All, a fine green wrinkled Marrow, hardier than Veitch's Perfection and of superior quality. Maclean's Premier, a wrinkled Marrow, good alike in cropping and quality. Blue Scimitar in an unfavourable season and locality for late Peas often does well when those named only do moderately.

Of the very dwarf Peas I am not enamoured. They are useful for growing in pots, boxes, or in pits to afford a few early dishes, and may be used for the same purpose at the base of walls with south aspect. Little Gem is good, Early Premium better, and Blue Peter to my mind the best of all in this section.—G. ABBEY.

COMPARISONS—ROSES.

COMPARED with the springs of 1879 and 1880, that of 1881, severe though it proved in the early part of the season, has not on the whole been so adverse to Roses as might have been expected. Much good steady growth was made through the whole genial month of May, but much of this progress was checked by a cold and unkindly June, and the trees became infested by the little green insect, whose frothy surroundings were to be found not on Rose trees only, but on Gooseberries and Currant trees and on the grass even, and in one county on the Hops. The Rose trees suffered severely from their visitation, the shoots of the first bloom being damaged and the blooms turned black and disfigured. Many standards had already succumbed to the frosts of winter or had died off after pruning, but the dwarfs generally came out well, nor in my small collections have I lost any Tea Roses. Reine Marie Henriette, planted last autumn near a south-west wall, has grown and spread with remarkable vigour, the bloom being very early, vivid cerise, like Madame Boutin, and highly fragrant. Cheshunt Hybrid, too, is a strong grower with showy flowers, but wholly wanting both in flower and foliage in the delicacy which distinguishes the true Tea.

Amongst the newer Hybrid Perpetuals A. K. Williams appears a most satisfactory Rose, of excellent shape, size, and substance, rich foliage carrying grand blooms of an intense vivid red, which retained their freshness unseathed through three days of the

almost tropical sunshine of July. Souvenir de Spa is darker and more velvety red, somewhat shallow in the cup, still a fine Rose and of exquisite fragrance. Sir Garnet Wolseley is a fine and very effective Rose, in colour like Madame Annie Wood. Beauty of Waltham never fails. Star of Waltham has not yet been sufficiently tested by me, but of certain old favourites which have made themselves so at home in our light soil I cannot speak too highly. La France and Capitaine Christy have been of great size, and the former always preserves its perfect outlines. While generally securing a few of the most promising of the newer varieties, I love to add to the old and tried favourites. For richness of colour and perfume Prince Camille de Rohan can hardly be surpassed, but with me the blooms are small. Pierre Notting is very large, and Reynolds Hole has given me some medium blooms, but of an almost unique richness, the scarlet shading of the maroon being very beautiful.

As to the gaps which the gradual decay and loss of the standards have occasioned, we in the first place lifted quantities of blue Nemophila (*Nemophila insignis*), besides planting numbers of the *Anemone japonica alba*. The first is not yet over, the last are beginning to make a display, and both are refreshing to the eye amongst the many red tints, which are always easy to obtain. Petunias, too, are now very large and showy, and in a somewhat shaded bed a few choice Pansies are at this moment flowering well. Amongst others Duchess of Edinburgh, Mrs. Felton, Queen of Yellows, Rev. John Taylor, Senator, and Corbie.

Nothing can really compensate for the loss of the standard Roses, grand, beautiful, and attractive as they were; but we must admit that amateurs with small gardens in exposed situations must, for the present at least, give up growing them, save here and there in sheltered spots. The Rose will still be the Rose whether high or low-growing. We must accept our fate, cherishing all old tried favourites, and welcoming the new additions as we have space and inclination.—A. M. B.



MR. RICHARD GORTON requests us to state that the ROSE-FLAKE CARNATION TIM BOBBIN was the variety selected by the Judges as the premier Carnation at the recent Manchester Exhibition, and not Rob Roy, as recorded on page 149 of this Journal.

— IN reference to the PENSION AUGMENTATION FUND of the Gardeners' Royal Benevolent Institution, Mr. Cutler states that "The number of responses I have now received to the appeal to this fund is 339, contributing the sum of £406 11s. 10d. The average remains the same as recorded last week—viz., £1 4s. each response."

— IN reply to "G. O. S." respecting the method of making BIRDLIME FROM HOLLIES, Mr. H. Ritchie sends the following note—"I remove the bark immediately after the trees are cut down, as it can then be easily separated. It is then boiled for some time until the outer layer will peel off. When this is done place the bark on a flagstone and thoroughly beat it to fragments with a hammer, then provide a tub with water and take a small portion of bark and wash it to remove the fibre and refuse. When this has been effected put the cleansed portion in a tin box, and it will keep good for twelve months."

— "R. P. B." observes—"With regard to the controversy respecting the relative success of SHADED AND UNSHADED CAMELLIAS, I send some specimens of the growth our plants have made, all with one exception grown under shade. Colour and size of foliage so far have very little to do with the blooming qualities of the plants. There may be of course a small dwindling growth with foliage of a corresponding type, but plants in perfect health I imagine will give quite as good returns as those with larger leaves and which possess the peculiar glossy dark green hue noticeable in some collections. I have also sent some

specimens to show how blooms may be cut with attached stems without injury to the flower-producing qualities of the plants."

— "L. D. W." in referring to the IVY-LEAF PELARGONIUM GLOIRE D'ORLEANS says—"The flowers are very double, and it is a great acquisition. Its flowers are bright and much deeper in colour than any other variety I am acquainted with. They are produced very freely while the plant is in a small state. This plant will be valuable for baskets and for decorative purposes in pots."

— "D., Deal," writes—"After several unsuccessful attempts I have at last succeeded in establishing that most lovely climber, TROPÆOLUM SPECIOSUM. I have planted it at the north side of my greenhouse, and placed a piece of wire netting against the brick wall. It has run up and nearly covered this, and although planted only last autumn is now as full of bloom as ever I saw it in Scotland; and as we look on the greenhouse from the sitting-room windows, it forms a very pleasing and conspicuous object. I had previously tried it in various aspects, but in none of them had it succeeded well, but here it is quite at home; and although we have had so much dry weather this year, and the moist climate of Scotland was supposed to be the cause of its doing so well there, it could not be more satisfactory than it is, and hence we must conclude that it is aspect more than soil we have to consider down south. In Scotland I have seen it growing in all aspects and under various conditions."

— REFERRING to the much-admired Orchid, DISA GRANDIFLORA, the same writer observes—"This has been quite a success with me this year. I had a large pan of it which threw up five spikes of bloom, one with five flowers upon it. I have treated it as I described before in the Journal, as a bog plant, and have grown it quite close to the door of my greenhouse, where it has abundance of air. It is syringed several times a day, and is certainly a most lovely plant, while the length of time that the flowers remain in bloom is remarkable."

— "W. B." writes that "the Corporation of the city of Liverpool have recently purchased from the Continent a number of fine PYRAMIDAL and STANDARD BAYS. They are placed in the front of St. George's Hall and round the fountain recently erected. The plants are handsome specimens, some 7 or 8 feet high, and the heads of the standards some 3 to 4 feet through. The public will undoubtedly much appreciate this improvement to this imposing portion of the city, which all Liverpoolians are proud of. The Walker Art Gallery, which is in close proximity to the Hall, is neatly bedded with Ivy and Pelargoniums, with large specimen plants of the latter arranged round the front of the building. It is surprising how these few flowers add to the cheerfulness of the place. It is to be hoped the Council will carry out further improvements of this nature as was contemplated some time ago. All townspeople enjoy and highly appreciate a few flowers, and it would be well if other large towns followed in this respect the example set them by Liverpool."

— WE have previously referred to Messrs. J. Carter & Co.'s CROWN JEWEL STRAIN OF TUBEROUS BEGONIAS, and a box of flowers now before us fully maintains the opinion then expressed. The blooms are of good size and neat form, the colours being considerably diversified; from white, through pink to various shades of crimson there are many gradations of tint, all clear, and many extremely brilliant.

— WE are requested to announce the following GARDENING APPOINTMENT:—Mr. J. J. Lowry, late gardener to W. Gascoigne Roy, Esq., Byams, Marchwood, has been appointed gardener to James Macandrew, Esq., Belmont, Mill Hill, N.W.

— MR. W. ROBERTS sends the following note upon the FRUIT

CROP IN WEST CORNWALL. "There is one of the best crops of fruit known for many years in this district, which has raised the spirits of the market gardeners. Apples are abundant, the principal sorts being Keswicks and Lord Suffields. A few of the American varieties, such as Newtown Pippin, &c., are on trial. Pears are very good, Medlars and Plums also good generally. Bush fruits are on an average abundant. Raspberries would have yielded an enormous crop, but that many canes were killed last winter: however, the crop was excellent."

— WHITEWASH FOR GLASS.—I wish to shade a glass house with whitewash during the ensuing winter. Can any of your readers recommend something to mix in the whitewash to make it sufficiently adhesive to resist rain and frost until February, when it will need to be washed off for the following spring and summer? I shall be glad to have a reply through the Journal.—S. E.

— IT is announced that a portion of the COLLECTION OF YUCCAS, AGAVES, AND BONAPARTEAS AT THE CHATEAU DE VOSSELAERE, near Ghent, will be sold on the 1st of September of the present year. Some of the principal species and varieties that will be offered are the following—Agave applanata, A. dealbata, A. ferox, A. Ghiesbreghtii, A. heteracantha, A. Kerchovei, A. Millerii, A. mitriformis, A. Salmiana, A. univittata, and A. Verschaffeltii; Bonaparteia glauca, B. gracilis, B. histrix, and B. striata; Yucca aloifolia fol. var., and Y. quadricolor.

— "C. C." writes—"I was amused by the article in a recent issue of the Journal about the 'VAGARIES OF SEEDS.' I can add an instance which seems to me quite as curious as those mentioned. I have cultivated my present garden four summers, and have always grown a large number of Lobelias in the flower borders. At the approach of winter the Lobelias have been consigned to the rubbish heap, and in the spring of 1880 the rubbish heap was 'dug in' in the vegetable garden. This year to my surprise an enormous quantity of Lobelias have appeared among Potatoes, Peas, &c. I think this proves that Lobelia seed at all events is hardly what can be called tender. While I am writing, please let me caution your readers against mulehing their Strawberry quarters in summer with lawn cuttings. I did it last year, and this year have had a splendid crop of fine lawn grass among my Strawberries!"

— "AN OLD SUBSCRIBER" will be obliged if any of our readers can give two good receipts—one for making Coltsfoot wine, the other for making Horehound beer.

— WE are informed that Messrs. J. Weeks & Co.'s new invention—the HYDRO-CALORIC WARMING AND VENTILATING COIL, that was figured and described in our issue of March 21st of the present year—has obtained a first-class award at the Medical and Sanitary Exhibition at South Kensington. It is now fairly before the public; and those interested in sanitary matters will have a good opportunity of judging of its merits, as it is being fixed at some very extensive works, among others the New Medical Schools, Charing Cross Hospital, the Bishop's Down Grove Sanitarium at Tunbridge Wells, and the Stockton Road Schools at Sunderland, and at numerous private mansions in the country.

— THE Directors of the ROYAL BOTANIC INSTITUTION OF GLASGOW having been enabled to reconstruct the "Kibble Palace" within their garden as a temperate plant house or winter garden, and to commence the erection of a new range of plant houses to replace the existing ones, have resolved, in view of the furnishing of these houses, that the practice of selling plants and flowers and of supplying plants for decorative purposes from the garden shall, after 1st August, 1881, be discontinued. In taking

this step, the Directors are confident of having the support of the shareholders, subscribers, and the general public. By the system at present carried on the garden is continuously deprived of its choicest flowers and finest plants to meet the demands of purchasers, and the hiring-out of decorative plants leads to very serious injury to the specimens. The Directors believe that the announcement of this resolution will materially benefit the garden, and they anticipate that it will lead to increased liberality in the way of donations of plants and seeds from those interested in the institution. Moreover, as the institution will now cease to compete in the market with nurserymen and florists, the Directors trust that the characteristic generosity of these gentlemen towards public gardens will be extended to this institution, and that it will receive from them specimens not only of known and familiar plants, but also of novelties, as they are from time to time introduced. Contributions of plants and seeds are at all times gratefully acknowledged by the Directors, but at the present juncture will be especially welcomed, and the Directors earnestly solicit donations from those who have it in their power to give. So far as practicable, the Directors are prepared to make exchanges of plants and seeds, and they confidently look for increased support from the public in their endeavours to make their grounds a botanic garden worthy of the city.

SINGLE v. DOUBLE FLOWERS.

IF "SINGLE-HANDED" has been misunderstood he has himself to blame. The tone of his communications has been to exalt single forms at the expense of those that are double, the normal types of flowers as opposed to those which have been improved under culture. When a man affirms that in ninety-nine cases out of every hundred the addition of more petals to a perfectly formed flower has been to destroy beauty—when he unhesitatingly says that "the simple wild flowers are more lovely by far than even our favourite garden varieties"—when he writes an article in praise of a bouquet of weeds, and winds up by saying that "altogether it would be difficult to match our bouquet with all the wealth of the garden from which to choose"—has he a right to say that his "observations have been misunderstood?" With regard to Hollyhocks, though I would not say the individual flowers are beautiful singly, yet the Hollyhock is as a decorative plant unique in the effect it produces, double varieties being more showy than single ones. Now, might I ask why your correspondent prefers the double forms of Pinks, Picotees, and Carnations to those that are single? and why are double Primulas and Azaleas inferior to single forms?

Is not the answer to the query "What is a cultivated and what a wild flower?" rather puzzling? I grow a great many native plants in our border; they are doubtless wild flowers, and as certainly cultivated. I do not object to their being called wild flowers even in that position; but it is rather strange to place cultivated exotics in the same category. The term "wild flowers" has certainly a meaning, and embraces a defined number of plants, but few apply that term to *Eucharis*, *Pancratium*, *Odontoglossum*, *Epidendrum*, or *Aquilegia chrysantha*. The reference to the cost of collecting and cultivating these and other tender exotics is quite beside the mark, and does not affect the question of beauty in any way. Either these are more beautiful—as your correspondent in his last communication allows they are—than the native flowers of which the bouquet was composed, on their own intrinsic merits, or they are not. As to selecting *Odontoglossums* on the same lines as myself, if he does he will go contrary to his previously expressed ideas on this matter, as at page 392 of last vol. the practice of selecting *Odontoglossum Alexandræ* in the forms which approach nearest to the circular is condemned as being "false" and "bad in taste." I decidedly prefer a broad-petalled variety.—R. P. BROTHERSTON.

AT page 158 of your much-respected Journal a writer signing "SINGLE-HANDED" mentions my name in an improper manner. He says, "I never yet proposed the banishment of a single garden flower, yet Mr. Shirley Hibberd, in his lecture on the Carnation, goes out of his way to say that it has been proposed to abolish them all. It is certain either that that gentleman has not read my paper or has done me injustice in misrepresenting me. Others have honestly differed from me, or rather from what they have fancied my ideas to be." It may be matter of opinion

whether I went in my way or out of my way in vindicating the theory of floriculture in a lecture on the Carnation; but as a matter of fact, your correspondent was not in my mind when I deplored the folly of those who profess to regard florists' flowers as ugly lumps. Your correspondent may be sufficiently conscious of his own importance to suppose it impossible for anyone to discourse on the subject without referring to him. I really did not refer to any existing individual of any size or shape, but only to a mythical Caliban, the child of Nature, who loves water with berries in't. For me and my purpose he is an abstraction, and I deny the right of your correspondent to appropriate to himself the characterisation.—SHIRLEY HIBBERD.

ROYAL HORTICULTURAL SOCIETY.

AUGUST 23RD.

FALLING on the eve of the Great International Show at Manchester, this could not be expected to be a large meeting; nevertheless, though comparatively small it was a very interesting gathering, both fruit and flowers being well represented, and the prizes offered by Messrs. Ewing & Co. of Norwich for collections of twenty-four varieties of sprays of hardy trees and shrubs were competed for.

FRUIT COMMITTEE.—Harry J. Veitch, Esq., in the chair. Three very handsome bunches of white Grapes of a new variety were sent by Mr. Ollerhead, gardener to Sir H. W. Peek, Bart., Wimbledon House, named Ollerhead's White; the bunches were massive in size and the berries fairly large. In appearance the bunch is not unlike Foster's Seedling, but with Muscat-shaped berries. The Committee considered it a very promising Grape, and desired to see it again later in the season to test its keeping qualities. We are informed that the Vine that these Grapes were cut from carried a crop of fourteen similar bunches. Mr. Woodbridge, The Gardens, Syon House, sent a dish of Cherries named St. Margaret, an intensely black fruit, and particularly sweet, for which a letter of thanks was awarded. Southwood Gem Melon was exhibited by Mr. R. Roper, gardener to W. Hughes, Esq., Southwood House, Highgate, but the Committee passed it as unripe. Mr. Wilkinson, gardener to Viscount Gage, Firlie Place, Sussex, sent several Melons, which were also passed. From Mr. Thos. Rivers, Sawbridgeworth, came a dish of Pears named The Beacon, of the Windsor type, but wanting in flavour. Potato Multum in Parvo was sent by Mr. Nesbit, gardener to Sir Thos. Whicbroke, Bart., Aswarby Park, Sleaford, which the Committee recommended for a trial at Chiswick. A very fine box of Ecklinville Seedling and Duchess of Oldenburgh Apples, also some Tomatoes, were exhibited from the Royal Horticultural Society's Gardens, Chiswick.

FLORAL COMMITTEE.—James McIntosh, Esq., in the chair. Mr. T. Riehes, The Grove Nursery, Tooting, staged about fifty varieties of hardy herbaceous plants, including *Statice latifolia*, *Artemisia procera* Fisheriana, *Stenactis speciosa*, *Dactylis glomerata* elegantissima aurea, *Rudbeckia Newmanni*, *Centranthus rubra* and *Centranthus rosea*, *Campanula ranunculiflora* flore-pleno, *Campanula carpatica* and *carpatia pelviformis*, *Helianthus multiflorus*, *Dracoccephalum Ruprechtii* and *D. peregrinum*, *Asperula birta*, *Gypsophila paniculata*, and *Castilleja indivisa*, &c., for which collection a vote of thanks was deservedly awarded. Two pots of a new white *Lobelia* named compacta Bella came from Mr. James McKenzie, Wensley Rectory, Bedale, York, to which a vote of thanks was awarded. A cultural commendation was awarded to Mr. Balehin, Hassocks Gate Nursery, Keymer, Sussex, for *Reseda odorata* prolifera alba, previously certificated—a white-flowering *Mignonette* bearing innumerable panicles of flowers. Mr. Ware, Hale Farm Nurseries, Tottenham, sent a single *Dahlia* White Queen, which is very valuable for border decoration and for affording cut flowers. Messrs. Hugh Low & Co., Clapton Nursery, sent two plants of *Odontoglossum Alexandræ* to show the branching character of the spikes, which were produced in the cases in transit as imported from abroad. A vote of thanks was awarded. From Messrs. Veitch & Son came *Lælia Sedeni*, the result of a cross between *Cattleya superba* and *C. Devoniensis*, with six flowers; *Ixora Chelsoni*, a garden hybrid of a salmon buff colour; also *Ixora Westii* hybrida odorata amboynensis, almost white when the flowers first open, but changing to pink; good habit and very distinct. From the Society's gardens came a large collection of Dahlias principally of the Pompon type, a collection of *Ceanothus*, and *Begonias ascotensis* and *Martiana*.

Certificates were awarded for the following plants—

Mascarenhaisia Curnowiana (Lowe).—A *Rhynchospermum*-like plant with rosy pink star-shaped flowers, and apparently a free grower.

Mormodes armenaicum (Bull).—In colour a salmon orange, and carrying twenty-four flowers.

Lilium auratum cruentum (Bull).—A very fine form, having the shape of the flowers of *L. auratum*, with the markings of *L. lanceifolium*.

Centaurea ragusina Russellii (Russell).—A compact form of the *ragusina* type, but less divided in the foliage.

Coleus Edith Sentance (King).—A most striking variety, with dark velvety serrated edges and bright maroon centre.

A second-class certificate was awarded to *Gloxinia Mrs. Rapley* (Rapley).—Rich crimson, of velvety texture.

For the prizes offered by Messrs. Ewing & Co., Eaton, Norwich, for a collection of shoots or twigs of twenty-four varieties of trees and shrubs hardy in British gardens, the degree of hardiness to be taken into consideration in awarding the prizes (first prize £2, second £1), there were only two competitors. Mr. J. W. Moorman, gardener to Miss Christy, Coombe Bank, Kingston-on-Thames, secured the premier award with the following collection:—*Comptonia asplenifolia*, *Retinospora obtusa aurea*, *Abies nigra*, *Mahonia aquifolia*, beautifully fruited; *Retinospora plumosa aurea*, *Osmanthus ilicifolius*, *Thuja borealis*, *Aucuba japonica*, *Cedrus atlantica*, *Picea Nordmanniana*, *Hydrangea paniculata grandiflora*, *Cercis siliquastrum*, *Sambucus laciniatus*, *Taxodium distichum*, *Acer Negundo variegata*, *Cydonia japonica* in fruit, *Spiraea ariæfolia*, Variegated Sycamore, Waterer's Holly, Variegated Snowberry, Golden Yew, *Thuja gigantea*, Japanese Privet, and the Fern-leaved Beech. Mr. Morse, nurseryman, Epsom, secured the second prize, and exhibited *Retinospora pisifera*, *Corylus Avellana purpurea*, *Erica vagans* and *vagans alba*, *Rosa rugosa*, *Retinospora leptoclada*, *Ligustrum ovalifolium robustum*, *Spiraea Douglassi*, *Acer colchicum rubrum*, *Acer Negundo variegata*, *Catalpa syringæfolia alba*, *Spiraea Fortunei*, *Veronica Traversii*, *Hydrangea paniculata* and *paniculata grandiflora*, *Magnolia grandiflora*, *exoniensis*, &c. These contributions made a very interesting display, and were a rather important feature of the meeting.

CUCUMIS PROPHETARUM (GROSSULARIODES).

THOUGH not by any means a novelty, the Gooseberry Gourd is seen in few gardens, and is known by few gardeners except where such old and interesting plants are valued. To most botanists it is indeed well known, at least by name, for it was one of those which Linnæus described in his terse but graphic style. Thus the plant is invested with some historical interest; but in addition to that it possesses some beauty, especially when well grown and tastefully trained.

The aptness of the popular name is at once perceived when the fruit is examined, for the small oval or globular gourds are studded with short spine-like protuberances exactly suggestive of some hairy varieties of Gooseberry. In size, too, they are nearly equal, and when the fruits are not fully ripe there is a further resemblance in the peculiar green tint. The longitudinal and regular streaks



Fig. 32.—CUCUMIS PROPHETARUM.

are, however, a great mark of distinction if there were any danger of confusing the two, which is scarcely possible even by the most superficial and unbotanical observer. When the fruits are fully matured the streaks are alternately dark green and yellow, the comparative difference in hue being well indicated in the woodcut, the lighter streaks representing the yellow ones.

Like most of its race this *Cucumis* requires a stove temperature to ensure its success, and being an annual seeds must be sown every year, preferably early in the spring, to obtain plants for fruiting in the summer. Moderately light and rich soil is needed, with abundant supplies of water during growth. One of the most effective modes of training is to take a clean stem to the height of 18 inches or 2 feet, and then train the shoots horizontally either along a string or so as to cover a flat trellis, from which the fruit will hang, and can then be seen to the best advantage.

HONG KONG.

(Continued from page 157.)

ON entering the harbour by either the eastern or western of its islet-studded approaches the first impressions made upon a new arrival are neither so deep nor so favourable as those which succeed after a period passed in quiet residence and circumspection. In

this respect, however, I do not believe that Hong Kong is peculiar. The "globe trotter," the transitory visitant scouring from place to place with a circular ticket, putting his head inside each and glancing round, and then posting on to the next stage with his head whirling from the jumble of undigested impressions he has received, is about the last person whose word should be accepted regarding the comparative merits of the spots he has touched at. The natural and social features of a place must be known, distinguished, and assorted before an opinion of their value as compared with those of another can be reliably formed.

The aspect of the surroundings of Hong Kong strikes you at first as being a little lowering and sombre on the island side and harsh and bare on that of the mainland, where the yellow soil of Kowloon peninsula and of the neighbouring foot-hills glares obtrusively forth with but a very partial alleviation of verdure. This, however, is a defect to which the eye becomes accustomed, and from the Hong Kong side is much tempered by the blue sea which lies between. Before landing, too, no idea can be formed of the true extent of the town, its endless winding roads, its hanging gardens, and its labyrinthine Chinese quarters, where 160,000 Celestials are by dint of British authority kept in a condition of, to them, quite unnatural cleanliness. The general aspect is of a long frontage of imposing white Italianesque warehouses, running for a distance of about two miles along the edge of the water;

while over them the other houses seem to rise in ever-narrowing terraces, until at a distance of about 200 feet above the harbour level they break up and disperse into scattered shining bungalows perched upon arduously hewn sites, and straggling up the peak in solitary or duplicate grandeur. Supreme over all towers the sombre green peak, in height about 1800 at the point where the signal-staff can perhaps be seen flying—the intimation of some approaching mail steamer; and more towards the centre of the island, where the hills sink to a height of from 12 to 1400 feet, may be perceived, like tiny toy houses, the residences of those who prefer the cooler and mistier regions of the upper air. Should the new-comer, however, arrive during the season of the south-west monsoon which blows from April to September, it is possible that a heavy combination of mist, clouds, and rain will for a while conceal from his view not only the peak and its adjacent hills, but even the higher residences of the town, and he may perhaps have to disembark in such a downpour of rain as will almost wash holes through his umbrella.

The first act of the stranger is to commit his baggage to two, or, if necessary, four Chinese coolies, each wearing little besides a loin cloth and an enormous pagoda-crowned hat the size of a small umbrella. One striking feature about them is the extraordinary dimensions to which their calves have been developed by the exigencies of their calling of carrying great weights. The burdens these toilers will transport up gradients which an unnumbered European very reluctantly scales are something quite astounding, while on level ground they are proportionately heavier. Whatever luggage our traveller may have is very quickly slung upon a thick bamboo pole by these experts, who trot off with it through the grimy ugly throng of people on the quays, leaving its owner to follow in a light bamboo sedan chair, painted green, and borne on the shoulders of two other coolies of less stalwart dimensions and more abundant raiment.

The "chair," as it is locally termed, is a great Hong Kong institution, and one with which a new arrival cannot fail to make a speedy acquaintance. It stands to the Europeans, and indeed to everybody, in place of every other kind of conveyance, as it is the only one of which the hilly nature of the town admits, and though often needlessly used by persons who would do better to walk, is occasionally quite a necessity. Every lady has a private chair, so have most married men; and self-indulgent bachelors, particularly fat ones, are not ashamed to own them. On Sundays the cathedral is beset with chairs and couples of attendant coolie boys wearing the distinctive uniforms of their employers, whom they have deposited and are waiting to carry away when service is over. There is, perhaps, no other place where a small society of Europeans are to be seen in a more orientally foreign environment and amid more beautiful natural surroundings than at the meeting and dissolution of that congregation of chairs on a Sunday in the summer season. There are Chinese, there are tall dusky red-turbaned Sikhs policemen, there are English naval and military officers in tropical uniform, civilians in white, civilians in black, civilians with bell-topper hats, low felt hats, mushroom hats and helmets, ladies in every degree of clothing from black silk to airy tarlatan; while around all is intense sunlight, moisture-dripping trees, white-gleaming buildings, soft green sward, a smiling harbour covered with shipping of every nation, and the solemn strains of the old sacred home music pouring through the doors and windows of the cathedral. But though useful as an aid to religion, the chair is much more indispensable as a means of transport to the halls of pleasure. Such is the nature of the Hong Kong climate for five months of the summer, that to walk any distance in dress clothes, even on level ground, would result in your presenting yourself before your host or hostess with woefully limp shirt cuffs and shirt front, while to scale 300 feet or more to the higher residences of the town would be utterly destructive of any conventional stiffness of linen. Hence for such expeditions the services of two hired coolie boys and a chair are absolutely necessary. You are at first very much struck by these Alpine ascents on the shoulders of natives, especially if they wheeze a little, as they do to impress and excite the liberality of new comers; but in time, as the muscles of your legs soften your heart hardens, and you view the panting coolie with equanimity. The mystery to me is how these coolies can struggle up such heights with a mere moderate 150 lbs. specimen of humanity like myself without breaking their hearts. When, however, you see four of them jogging up to the peak, a height of 1200 feet on two mules, and bearing some 220-pounder incarnation of ponderosity, reason and physiological knowledge fail in explaining the constitution of the Chinaman, and you can scarcely help wondering whether he is a part of the organic creation at all, but not rather some marvellous automaton cunningly devised by Providence for the special benefit of the European.

It is over the "prayas" or quays that the newly disembarked visitor must approach the better parts of Victoria. These, like the rest of the town, are composed of solid granite, and here and there at low tide may still be seen the wreck of the old praya torn up in the great typhoon of 1874. In that convulsion, among innumerable other casualties on sea and shore, two steamers were dashed by wind and wave almost upon the warehouse fronts, and their shrieking occupants drowned under the very windows and within earshot of the cowering inhabitants. For days afterwards dead bodies were picked up everywhere, and it has been roughly stated that at least eight thousand of the Chinese boating population then perished. Now the praya is restored, and the boating population swarms along the edge in more than its pristine vigour. There you can see countless sampans each containing a family consisting of a haggard old father or mother or both, and from two to four children. In that cramped and unstable household contrivance they eat, drink, sleep, have their being, and will probably die if another typhoon does not first overtake and tumble them out into a watery grave.

Along the prayas for a distance of a mile and a half there is nought but hurry and bustle: great steamers coaling or discharging cargo, coolies running hither and thither with enormous bales of merchandise swinging between them, and a heaving mass of sampans bumping against each other under the stone parapets of the quays, from which proceed the high-pitched metallic tones of the owners asking in broken English if you "wantchee saampaan." Up and down the roadway passes an ever-moving throng of squalid wrinkled-looking men and women with garments singularly alike, consisting of very loose-fitting jackets and trousers of a dirty blue or brown colour, the women being distinguishable from the men by having their hair not "in queue," but plastered down and flattened out into two stiff protuberant waves on each side of their faces. Here and there are groups of Chinese urchins, fit subjects for the London School Board, playing at marbles, which they throw by placing the stone before the second finger of the right hand and drawing it back with the first finger and thumb of the left like a catapult. "One touch of nature makes the whole world kin," and I have often felt the contempt with which I regarded these sinian-looking little creatures relax on viewing the childish gaiety, eagerness, and altercations with which they pursue their sports.

A great feature on the prayas, and indeed in all Chinese streets, are the confectionery stalls, where are displayed peculiar small variegated cubes or slabs of what appears to be a mixture of sugar and paste, and covered with hieroglyphics, which may possibly attract a European to try the experiment of putting them into his mouth and out again. Itinerant or localised restaurants, too, are visible at very short intervals, where the most extraordinary-looking soap-shaped kinds of white and yellow batter are vended, after having been split up and fried in a bubbling pan of liquid fat. At other points are kitchens, where whole or divided fish, fowl, rabbit, and especially sucking pig, are to be seen hanging up ready for direct transport to the family tables of their patrons. The Chinaman seems to desire none of that privacy at meal times which Europeans prefer. If he is of the poorer class he will squat down at an eating stall or at the corner of the street, and ply his chopsticks regardless of a whole crowd of admiring Europeans. If he is well to do he still sits down with the male portion of his family and his employés round a circular black table in the middle of his shop, leaving the door wide open to the street. The operation of the chopstick is very disappointing, being by no means of that rapid juggling nature which one has been led to expect. The eater takes up a small dish or bowl full of rice, arranges some pieces of meat upon it, and then, lifting it close to his mouth, shovels the contents in with the chopsticks. Women of the better and reputable classes are never seen eating and but rarely walking in public. They appear to be a repressed and spiritless class, looking at everybody and everything out of doors with a stupid stolid gaze, which contrasts remarkably with the piquant genial demeanour of the few Japanese women that are to be seen around. Occasionally you will meet a China woman in her blue jacket and trousers and starched coiffure hobbling along on what looks exactly like a donkey's two hind hoofs. These are the tiny feet we have so often heard about, and are one of the most hideous of the many sacrifices which female vanity and tyrannical custom have offered up at the altar of Fashion. The practice is, I am told, decaying.—A WANDERER.

(To be continued.)

PETRIFIED FORESTS.—In 1871, when the writer of this spent some weeks in the Rocky Mountains, the petrified remains of a forest of Redwood, Oak, and other trees petrified, thrown up from

a lower level by volcanic action, and deeply imbedded in tufa, still with many portions of trunks some feet above the surface, were still to be found midway between Golden Pass and the Ute Pass, near Pike's Peak. It is now said to have disappeared, at least so far as anything is to be seen above the surface. It is said that another of these wonderful pre-historic series of remains in Sonoma, California, is fast disappearing before the zeal of relic hunters. It is to be regretted that these wonderful remains of the mysterious past could not be preserved, and it may not yet be too late for the State governments in which they are to be found to do something towards that end. The one in Colorado must have been buried very deep by the volcanic dust, as at the time the writer refers to one of the trunks was hollow, and a string and a stone at the end was let down and found to go many feet beneath the surface. No doubt if this old forest could be dug out to the original surface of the ground many interesting relics of plants and animals might be brought to light. Some exposed strata near, thrown up at the time the trees were destroyed, exhibited numerous skeletons of fish, showing that life at least of a high order of creation existed when these Redwood trees were growing there. There are now no Redwood trees living in Colorado, nor any Oaks beyond one shrubby species, *Quercus undulata*.—(*American Gardeners' Monthly*.)

WINTERING SUMMER-STRUCK ROSES.

IN answer to "L. T." who, having inserted Rose cuttings as directed, requires information concerning wintering them, I have to say that summer-struck Roses require some protection during such winters as the last two, about as much as is given to autumn-sown Cauliflowers being quite sufficient. If they do not show much sign of growth by the middle of September they will not be likely to become much crowded where they are, and may be protected in very cold weather by means of a few stakes and some litter or a mat, making the bearers so secure that a snow storm will not break them down. If they show signs of vigorous growth they may be either planted out in the cold frames, or potted in small pots and plunged in ashes with the rims half an inch below the surface. The lights should be kept off except in frosty weather, when they may have some litter thrown over them; and if covered in this way for a month at a time, so long as frosty weather continues, they will take no harm.

In the absence of glass any kind of protection may be made to answer the purpose, so long as not more than 8° or 10° of frost can reach the young plants, and they can be freely exposed on all occasions except when the weather is severe.—WM. TAYLOR.

WHAT PLANTS USE.

(Continued from page 84.)

THE MINERAL MATTERS.—We have seen that plants require carbon to build their structures, and that they find it in the air. It is probable also that some enters the roots of plants also in the form of carbon dioxide, either in combination or by itself, for all fertile soils containing the decaying remains of vegetable or animal matters constantly produce it. We have seen that plants need hydrogen and oxygen, and that these elementary gases are found in and manufactured by the plants from water. Other two gases are required—nitrogen and chlorine. Nitrogen is largely present, 0.29 per cent. of the whole bulk in the air in a pure form, and intimately mixed with the oxygen, which it serves to dilute. In this form it is of no use to plants. It is only when in combination with other elements that it becomes of use. For instance, ammonia—say as sulphate of ammonia, which is a common manure—is found partly in the air, and also in all fertile soils in different combinations. Ammonia is composed of nitrogen and hydrogen; 17 lbs. of ammonia contain 14 lbs. of nitrogen and 3 lbs. of hydrogen.—(*Agricultural Chemistry and Geology*, ninth Edition, page 29). Nitrogen is also available as plant food in the form of nitric acid. This is generally in combination with some alkali, such as potash, soda, or even ammonia. Nitrate of soda is a common manure, which owes its chief value to the nitrogen it contains. Saltpetre or nitre (nitrate of potash) is another familiar form. Nitric acid is composed of nitrogen, hydrogen, and oxygen. Nitrates are very soluble in water, and when dissolved enter plants by the roots readily. Nitrogen in some such form is necessary to plants. Out of them the plants form their nitrogenous or flesh-forming compounds.

Plants find ammonia in the air and in the soil. Many physiologists consider that the amount taken from the air is so small as to be of no consequence. We think they are wrong in this, for although the amount in the air is small the amount required is small; at the same time nitrogen in some form in the soil

promotes not only a rapid growth, but the formation of a greater per-centage of flesh-forming matters in the plants to which it is applied. The per-centage of nitrogenous compounds in Cabbages, Cauliflowers, Wheat, &c., varies a little, but the greatest per-centage is always obtained when the plants are growing on soils which contain plenty of nitrogenous manures. There is one exception to the rule in the case of the Leguminosæ—Peas, Beans, Vetches, and Clover, although containing more nitrogenous matter in themselves than any other plant almost, yet leave the soil richer in nitrogen than they find it, and are not benefited but the reverse by an application of ammonia. Indeed they fill the soil with ammonia to such an extent that it becomes "Clover-sick" or "Pea-sick," and they refuse to thrive on the same soil till the ammonia is removed by a different crop.

There is another fact worth mentioning in connection with manures rich in nitrogen. The nitrogen of nitrate compounds is much more easily washed out of the soil than that of ammonia compounds. Acids are very easily washed out of the soil while alkalies are retained. Soil manured with sulphate of ammonia—the value of which depends on the ammonia—will part with the sulphuric acid and retain the ammonia. In the case of nitrate of soda—the chief value of which depends on the nitric acid—the nitric acid will go and the soda remain if the ground is subjected to washing rains; nitrates should therefore be applied in moderately showery weather to growing plants. The showers will carry them to the roots, when they will be used up at once and before the season is done. Chlorine is the only other gas we have mentioned. It exists chiefly as a chloride of something, such as common salt (chloride of sodium), which is a compound found in greater or lesser degree in all plants.—SINGLE-HANDED.

(To be continued.)

CLAY CROSS FLOWER SHOW.

AUGUST 16TH.

THE twenty-fourth annual Show was held in the park adjoining the residence of C. Binns, Esq. This Show well deserves the patronage that is bestowed on it by people in the immediate neighbourhood, and the excursion trains from Sheffield, Nottingham, Derby, and other towns showed the estimation in which it is held. In the cottagers' class the vegetables were remarkably good and the competition keen, five prizes being given in each class. In the amateurs' class also the exhibits throughout were very good, Grapes especially. The Black Hamburgs from Mr. Ashmore would have taken at least second honours in the gardeners' class. The exhibits in the open class were, on the whole, of fair quality, particularly the plants.

Plants.—The five substantial prizes offered for twenty plants—consisting of six foliage plants, six Ferns, and eight in bloom—brought out five competitors, Messrs. Cole & Sons of Manchester being first with a meritorious group. The flowering plants, which were all very good, were *Erica amula*, *E. Marnockiana*, *E. Turnbulli*, *Allamanda nobilis*, *A. grandiflora*, *Ixora Fraserii*, *Vinca alba*, and *Dipladenia amabilis*. Mr. Ward, gardener to T. H. Oakes, Esq., Riddings House, Alfreton, was second, staging good plants of *Dicksonia antarctica*, *Cyathea Smithii*, *Gleichenia rupestris glaucescens*, *Kentia Fosteriana*, *Dasyliroium glaucum*, a fine plant of *Croton Challenger* well coloured, *Croton Johannis*, *Ixoras Fraseri* and *Dixiana*, *Erica Thomsoni*, *E. Austiniana*, *Statice profusa*, *Clerodendron Balfourianum*, and *Kalosanthes coccinea*. Mr. Cypher of Cheltenham was third; Mr. Dore of Clay Cross fourth, the latter with very healthy plants, though rather small; and Mr. Anderson, gardener to W. Walker, Esq., Cromford, being fifth. These hundred plants were all staged in one large circular group, and they had an imposing effect. For six flowering plants Mr. Haslam of Hardstoft was first, followed by Mr. Lyon, gardener to Lady Ossington, Newark; Mr. Swanwick being first for three with healthy plants of *Eucharis amazonica*, *Allamanda nobilis*, and *Bougainvillea glabra*. For six foliage plants Mr. Lyon obtained chief honours, closely followed by Mr. Swanwick. The same order was obtained for six Ferns. Fuchsias, Balsams, Begonias, and Geraniums were not very good. Mr. Anderson was first with six Gloxinias, Mr. Webb with six table plants. Mr. Ward was first with four Palms; and Mr. Proctor, nurseryman of Chesterfield, first with herbaceous plants and bedding plants. Four groups for effect were staged, Mr. Ward being first with a bright arrangement, Mr. Lyon a good second, Messrs. Dore and Webb third and fourth.

Fruit.—The fruit was generally good, though the prizes were small. For collection of eight dishes Mr. Ward was first with good Muscat of Alexandria and Madresfield Court Grapes, a Queen Pine, a Colston Basset Melon, Barrington Peaches, Elruge Nectarine, Black Turkey Figs, and Jefferson Plum. Mr. Webb was a close second, having a very good Pine and Peaches with fair Grapes. Two Pines only were staged, Mr. Webb being first; the other was not considered worthy of a prize. Amongst seven collections of black Grapes Mr. Ward was first with well-finished bunches of Madresfield Court; Mr. Lyon second; and Mr. Egg'estone, gardener to C. Binns, Esq., third, both with fair Black Hamburgs. Five collections of white Grapes were staged, all Muscats, which were in better condition than the black

Grapes. Mr. Swanwick, gardener to Col. Seely, Sherwood Lodge, first, Mr. Ward second, and Mr. Frith third. The latter had the best Melon, Mr. Ward being second. Mr. Lyon was first with Peaches and Nectarines, the former very fine. Messrs. Webb and Ward each received a second prize. Mr. Lyon was also first with a collection of hardy fruit, followed closely by Mr. Webb.

Cut flowers were not very good. Mr. Proctor secured most of the chief prizes for Dahlias, Roses, Gladioli, and Hollyhocks; Mr. Ward being first with eighteen bunches of stove and greenhouse flowers, and for eighteen bunches of herbaceous flowers. Mr. Dore was first for a bouquet, and Mr. Haslam held a similar position for a bouquet of Everlasting Flowers and Grasses.

An interesting and attractive group of plants was sent from Chatsworth; several plants of *Disa grandiflora*, *Pancratiums*, and well-flowered *Erieas* being especially noteworthy.—J. G.

PORTRAITS OF NEW AND NOTABLE PLANTS.

HYMENOCALLIS HARRISIANA. (*Nat. ord.*, Amaryllidaceæ).—"This is a very distinct species of *Hymenocallis*, remarkable for its dwarf habit, few-flowered umbels, and leaves not truly petioled, as in *H. speciosa* and *H. guianensis*, but narrowed gradually from the middle to the base. It was originally described by Dean Herbert from specimens imported from Mexico about the year 1840, by T. Harris, Esq., of Kingsbury, after whom it was named. It was never figured, and appears to have been soon lost from cultivation; but Herbert's description is so full and clear, that when we received specimens at Kew in the summer of 1879, almost simultaneously from Colonel Trevor Clarke and Mr. Elwes, there was no difficulty in identifying it. A plant which has been distributed under the garden name of *Hymenocallis uniflora* is clearly a mere form of the same species."—(*Bot. Mag.*, t. 6562.)

HYPERICUM CORIS. (*Nat. ord.*, Hypericinæ).—"In a very early volume of the 'Botanical Magazine,' published in 1792 (and in other works), a plant is figured under the name of *Hypericum Coris*, which has been rightly distinguished by Willdenow and all subsequent authorities as a different species from the Linnean plant of that name, and called *H. empetrifolium*. This and the fact that the two plants are frequently confounded in gardens, both being now commonly cultivated, renders it very necessary that a good figure of the true *H. Coris* should appear in this magazine. The differences between these plants consists in *H. empetrifolium* being a more shrubby though not a bigger plant, with very short sepals which are spreading in fruit, and in having broader and less oblique petals. They have further a very different geographical distribution, *H. Coris* being dispersed from the South of France to the Tyrol, and occurring in many parts of Italy, whereas *H. empetrifolium* is confined to the Grecian Archipelago and neighbouring shores of Greece and Asia Minor. With regard to the fact that the Crimea is assigned to *H. empetrifolium* in this magazine, it is unquestionably an error, as neither of the two species extends into the Russian dominions. The late Mr. Lee, who is the authority for this statement, probably received the seeds from some voyager who, on returning from the Crimea, had collected them in the Greek islands. The true *H. Coris* was introduced into England as early as 1640, and is figured in Parkinson's *Theatrum*."—(*Ibid.*, t. 6563.)

NARDOSTACHYS JATAMANSI. (*Nat. ord.*, Valerianæ).—"This interesting plant is unquestionably one of the Spikenards of the ancients, the history and identification of which have been much complicated by the long prevalent opinion that the word Spikenard referred to but one vegetable substance, and by the fact that Sir William Jones in his learned essay on the present plant was misled into referring its root to the foliage, &c., of a very different plant, which proved to be a species of *Valeriana*. Royle, who has summed up the history of the Spikenard of India with his usual care and learning, observes that Dioscorides described four kinds of Nard—the Syrian, the Indian (also called Gangites, from the river near which is the mountain which produces it), the Celtie, and the mountain Nard; and that a reference to the old Arabic and Persian works on the subject shows that the Spikenard or Narden is synonymous with Sumbul, of which four kinds are described, and that of these four the Sumbulindee is the Himalayan *Nardostachys*, being the Sunbulool-teeb, or fragrant Nard of the Arabs, the Narden of the Greeks, the Nardoom of the Latins, the Baleher of the Hindoos, and the Jatamansi in Sanscrit. *Nardostachys Jatamansi* abounds in the loftier regions of the whole Central and Eastern Himalaya, extending from Kumaon to Bhotan, at elevations of 11,000 to 17,000 feet, inhabiting stony places, and varying in stature and amount of odour according to the elevation, specimens from low levels attaining 28 inches in height, with larger leaves and flowers and faintly scented rhizomes, whilst the more alpine forms are dwarf, more slender, smaller flowered, with very strongly scented

rhizomes. The odour of the plant is heavy, but not wholly disagreeable, and though, like similar semioctid drugs, highly appreciated by Orientals, it could never find favour amongst the Western nations of Europe. The rhizomes are collected in abundance by the natives of the hills, and used throughout the East in a dried state in unguents and as a drug; no allusion is, however, made to it in Drury's 'Useful Plants of India.' The species figured flowered in the herbaceous ground of the Royal Garden in September, 1878, for the first time in Europe."—(*Ibid.*, t. 6564.)

ÆCHMEA LINDENI. (*Nat. ord.*, Bromeliaceæ).—"Next to *Billbergia*, *Æchmea* may fairly be considered the most effective genus of Bromeliads for decorative purposes. Of late years our knowledge of it has rapidly increased, and several fine new species have been brought into cultivation. Taking the genus in a broad sense, so as to include *Hoplophytum*, *Echinostachys*, *Pothuava*, and *Canistrum*, as it is treated in my Monograph in the 'Journal of Botany' above cited, we know now not less than sixty species, so that next to *Tillandsia* it is the largest genus in the natural order. The present plant was distributed by Linden in 1865, and was received by him from M. Libon, who discovered it in the province of Santa Catherina in South Brazil."—(*Ibid.*, t. 6565.)

CUSCUTA REFLEXA. (*Nat. ord.*, Convolvulaceæ).—"Though seldom seen in cultivation, this curious plant was first introduced into England in 1823, when it was raised in Colvill's then celebrated nursery from seeds sent from the Calcutta Botanical Gardens, and figured in Sweet's 'British Flower Garden' as *Cuscuta verrucosa*. In the following year it flowered in Edinburgh Botanical Garden, from seeds sent from the Madras Presidency, and was figured and described in the 'Flora Exotica' under its proper specific name. It is a very common Eastern Asiatic plant, occurring in China, Japan, and throughout the Peninsula and the Gangetic valley, in Ceylon and the whole length of the Himalayas, ascending to 9000 feet in Sikkim, attaching itself to a great many different plants, and varying much in the stoutness of the stem, the most slender forms inhabiting the lower levels. On the banks of the river Soane in Bengal it has been seen clothing small trees with a beautiful web of golden cords studded with white sweet-scented flowers. *C. reflexa* is very easily cultivated. Sweet points out that the more juicy the plant is to which it attaches itself the stronger it grows, and says that the strong-growing species of *Pelargonium* suit it admirably. He adds that a plant raised in spring began flowering in September, and soon became entirely covered with flowers of a most delightful fragrance, somewhat resembling a mixture of Cowslips and Violets; and that a plant which had taken hold of the Ivy by Mr. Colvill's shop soon covered a great part of it, where it continued in flower till the very severe frosts, and ripened its seeds. The specimen referred to was obtained from Mr. Lynch of the Cambridge Botanical Gardens, who finds it flourish on *Pelargoniums*, and in contact with a bed of Tree Ivies it formed a mass 23 feet long and 12 broad, which was all killed by 6° of frost."—(*Ibid.*, t. 6566.)



KITCHEN GARDEN.

CAULIFLOWER seed for producing plants to be pricked-out under handlights or frames on warm borders must at once be sown in an open situation, and not very thickly, so as to secure sturdy plants. Veitch's Early Foreing is a very desirable variety, and this year with us it was a fortnight in advance of any other, being very dwarf and compact, with beautifully white and delicately flavoured heads. Early London and Waleheren form a good succession. Young healthy Cauliflower plants may yet be placed out in good ground in a sheltered situation; they prove very useful if the early winter be mild. Onions and Spinach may still be sown, but the earlier after this the better. Continue planting Endive and Lettuce for successive crops, taking advantage of suitable weather to tie Cos Lettuce, which has a tendency even in the close-hearting varieties to become open at this time of year and onwards. Early Endive will also need tying; and in dry weather give a good earthing to early Celery, closing the soil well about the plants and keeping it from the centres. Afford liquid manure copiously to successive crops of these, and earth a little—only to induce a close growth of the heads—until the plants

are well advanced in growth. Sow Lettuce for transplanting to stand the winter for spring and early summer use. Stanstead Park is a good Cabbage variety, Lee's Hardy Green being also fine, and in Cos varieties Brown Bath (black-seeded) and Hicks' Hardy White are suitable.

Any spare ground should be planted with Coleworts, and preparation be made for planting early Cabbage. Ground that has been occupied with spring Onions answers well for this crop, and being in good condition no manure need be applied, merely pointing it over to secure an even surface, giving a dressing of two parts lime to one each of soot and salt, applying the mixture at the rate of half a peck per rod. This will induce a sturdy growth in the plants. They should be placed out as soon after this as possible, planting them about 15 inches apart in rows 18 inches asunder, or, if large heads are wanted, the distance must be increased by 4 to 6 inches each way. Globe Artichokes that have been two or three years on the ground have now ceased bearing and should be removed, and if young plants were planted early in spring they will now be bearing and will give heads for some time, yielding a good early crop next season as well as furnishing suckers. A supply of herbs should be cut when thoroughly dry and hung up in a dry airy place. Tomatoes must have all growths short of the flowering stage removed, keeping all lateral growth closely pinched or removed, so as to concentrate all the energies of the plant on the swelling of the fruit, that giving indications of ripening being detached from the plants and placed in a dry warm place under glass to accelerate the ripening process. Second early as well as the earliest varieties of Potatoes have completed their growth, and should be lifted at the first favourable opportunity, selecting those required for seed, which should be placed thinly in a cool airy shed, storing those required for use in a dark cool place. Varieties for winter use are not much grown in gardens, and very properly, as, owing to the richness of the ground required for the growth of high-class vegetables, the growth of the haulm is so rank that unless planted much wider apart than is necessary in poorer soil and more open situations they do not afford good results, and are sooner affected by disease. The crop should be lifted directly the disease appears in the haulm, for if left until this is much affected the mischief will be done.

FRUIT HOUSES.

Vines.—Late Grapes are well advanced in ripening where attention has been paid to starting them in good time, and assisting them at the starting and during growth, as indicated in former directions. Instead of having to maintain sharp firing in the dull short days of late September and October, as will be the case with houses that were started late in the spring, atmospheric moisture may now be gradually reduced, and well-ripened wood with highly finished fruit will be secured by the employment of sufficient artificial heat to maintain a circulation of dry warm air. Those Grapes about colouring must have a temperature of 70° to 75° constantly, advancing to 85° or 90° by day in favourable weather, giving a good soaking of tepid liquid manure to inside borders in the early part of the day, so as to allow of surplus moisture passing off before night. From this time until the Grapes are perfectly ripened a circulation of air must be secured day and night. Late Black Hamburgh Vines, the fruit of which is colouring, must not lack moisture at the roots, though the supply must be carefully regulated as the season advances. A temperature of 65° at night and 70° to 75° by day, with 10° to 15° rise from sun heat, will be all that is needed to ripen them. Give frequent attention to stopping lateral growths, but Vines carrying heavy crops may have a little freedom given the laterals to keep the roots active, which is one of the best preventives of shanking, but in no case must the laterals interfere with the due exposure of the principal foliage to light and air. Houses of ripe Grapes, the wood of the Vines being mature, need only have a little fire heat by day to admit of a change of air, examining the Grapes frequently, and remove decayed berries, and keeping the border in a moderately moist condition.

Vines from which the Grapes have been cut must not be neglected, but the laterals be closely pinched, and if there is any doubt about the maturity of the wood a warm dry atmosphere must be maintained until the wood is completely ripened. To insure the preser-

vation of the old foliage until this is effected an occasional syringing may be resorted to, to cleanse it from red spider. The Vines for early forcing must have the outside border protected from heavy rains; if ventilation has been fully provided for some time and the laterals have been kept well back the leaves will now have fallen, or, if not, shorten back some of the shoots, and by the middle of next month they may with safety be pruned. Any top-dressing or renovation of the border must not be delayed. Young Vines intended for fruiting next season should have a moderate shortening of the laterals, providing a circulation of dry warm air, especially if the wood is not already brown and hard, but on no account must the ripening of the wood be induced by a parchingly dry condition of the soil at the roots.

Melons.—Continue attention to former instructions as regards general treatment. Young growing plants, and those with the fruit swelling, should be syringed in houses facing south at about 3 P.M. and the lights closed, the temperature not advancing much over 90°, but in span-roofed houses facing east and west the operation may be deferred half an hour later. Shading can, if the plants are able to bear the sun without flagging, be dispensed with, but on no account must the plants be allowed to flag. As the days become shorter and the nights colder less atmospheric moisture will be necessary. If the latest plants are weakly supply liquid manure twice a week, but if they are vigorous do not apply any stimulant until the fruit is set and swelling, then earth-up with a good compost, and feed liberally until indications of ripening appear. Fire heat will be necessary to secure a temperature of 70° to 75° by day and on cold nights, falling to 65° in the morning. Persistent attention must be paid to fertilising the blossoms, maintaining a dry condition of the atmosphere to insure a good set, and if the weather be dull allow a circulation of dry warm air. Pits and frames must be closed early, and damp the plants lightly at that time on fine days, raising the fruits on pots so as to expose them to the sun when advanced for ripening. The last batch in these structures have set their fruit, and to encourage their swelling freely linings will be necessary to secure a bottom heat of 80° to 85°, and top heat of 70° to 75°, placing mats over the lights on cold nights. A much lessened degree of moisture will be necessary now that the weather is becoming colder, and this applies both to the soil and atmosphere. Fruit ripening can hardly be kept too dry, and a circulation of warm air secured by lining will improve the quality.

Cucumbers.—The autumn fruiters must have liberal treatment, adding a little fresh soil as the roots extend, encouraging surface roots, and preserving a firm condition of the bed. Syringe at 3 P.M., and close the house at the same time. Fire heat may be needed to insure a night temperature of 65° to 70°, and 75° by day, with an advance from sun heat to 80°, 85°, or 90°. Other plants require similar treatment as regards heat and moisture, keeping the growths fairly thin, and regularly stopped at one joint beyond the fruit, removing bad leaves and exhausted growths. In pits and frames be careful not to overcrowd the foliage, stopping the shoots a joint or two beyond the fruit. Be careful to avoid a cold moist atmosphere, which results in the fruit damping at the point. Afford linings to allow of ventilation to dispel damp.

PLANT HOUSES.

Cinerarias.—Plants raised from seed sown early must now be finally potted, 6-inch pots being most useful for general decoration, 7-inch pots for large specimens. Turfy loam with a fifth of thoroughly reduced manure is a suitable compost. Place the pots on ashes in a pit or frame, supplying water freely, and when the pots are filled with roots afford weak liquid manure. The plants should be near the glass, and have air freely, with slight shade from bright sun for a few hours at mid-day. Aphides must be kept under by fumigating moderately. Pot-off later seedlings, transferring to larger pots before they become rootbound. Detach suckers from named sorts, also double varieties, and pot singly in 3-inch pots, standing them on ashes in a cold frame, shading them until established.

Primulas.—Those from seed sown early must be transferred to 6 and 7-inch pots. Good fibrous loam, with a fifth of well-decayed cow dung and a sixth of sand, form a good compost. Afford good drainage, and pot them firmly. Place them on ashes in a pit or frame, and afford a slight shade from bright sun, ventilating freely, and

removing the first trusses of bloom. Later plants will need to be potted at intervals, not allowing them to become rootbound.

Cyclamens.—Old plants that have been in a cold frame on coal ashes will soon be starting into growth and should be turned out of the pots, removing any old soil not occupied with roots, and repot in the same size or a slightly larger pots, providing good drainage, and a compost of turfy yellow loam, a fourth of old cow dung or leaf soil, and a sprinkling of sand. They will do for a time longer in cold frames kept rather close, affording a slight shade from hot sun. Seedlings should be shifted into larger pots as they require it, being careful not to overpot, and in case of plants well advanced for bloom instead of shifting assist with liquid manure.

Pelargoniums.—Cut down the plants that flowered latest, having previously allowed the soil to become dry. They should be placed in a pit or frame, and not allowed much water until after fresh growth has been made. The earliest cut-down plants will be ready for shaking out, and should be attended to before the young roots are much advanced, and be careful not to have the soil very dry, or in reducing the balls there is danger of removing too many of the roots. Young plants will not require much reduction of the roots, but old plants as large as required may have about half their roots cut off. Turfy loam is the most suitable soil, a fifth of thoroughly decomposed manure being passed through a quarter-inch sieve and thoroughly incorporated with the loam, with about an eighth of sharp sand. For fancy varieties a little more sand may be added with a fourth of sandy peat. They can hardly be potted too firmly. Place them in a light pit or house, damping with the syringe every afternoon, giving plenty of air, and keep them clear of aphides by fumigation.

Chrysanthemums.—The plants must have supports and be attended to in tying to prevent their being damaged by wind. They require to be liberally supplied with liquid manure, or they cannot be expected to flower satisfactorily. The early varieties are now coming into flower, and if grown in 7-inch pots they are very useful for decorative purposes and conservatory decoration.

Violets.—If runners have been removed the plants of such varieties as flower in autumn and onwards may now be lifted and planted in the frames or pits they are to occupy during the winter. Give a good supply of water and they will become established in their quarters before the flowers are produced, not receiving so great a check as if moved when the blooms are appearing. Keep the lights off until frost.

Orchids.—Now the weather has become cooler the East India house must be kept moderately close. If the weather be dull reduce the moisture and have recourse to fire heat to maintain the night temperature at 65° and 75° by day, syringing the blocks and damping the house at three o'clock. *Aerides*, *Phalænopses*, *Saccolabiums*, and *Vandas* must still receive every encouragement, as any check will result in stunted growth. The shading must be withdrawn as soon as all fear of the sun scorching the foliage is past. Be careful that the sphagnum in which *Phalænopses* are grown in pots or baskets does not become sodden, or the leaves will soon be diseased. Dispense with shading on the *Cattleya* house, as light is of the greatest importance in ripening the pseudo-bulbs. Such plants as *Barkerias*, *Cattleyas*, *Dendrobiums*, *Epidendrums*, *Lælias*, *Oncidiums*, and many others produce weak deformed flowers if the growth is not well matured. *Calanthes masuca* and *veratrifolia* may now be repotted; and if the soil has become sour they should be shaken out, washing every particle from the roots in tepid water, repotting in a compost of equal parts turfy loam and peat, adding a little decayed cow dung and some charcoal the size of nuts well incorporated, affording efficient drainage.

THE BEE-KEEPER.

DRIVEN BEES FED INTO STOCKS.

A CORRESPONDENT, "J. M.," is rather unsettled on this question, having read lately in the Journal "that driven bees fed up in autumn usually have too much drone comb to make good hives next year, unless comb foundation be used;" and he wants to know if Mr. Pettigrew still thinks that the feeding-up plan is a good one. My opinion on this point remains unchanged. Generally speaking,

the most prosperous and profitable stocks I have had or seen have been fed with sugar. Many other bee-keepers, remarkably successful in reaping large harvests of honey, have a growing confidence in such stocks after many long years of experience. I know a very clever and intelligent apiarian—and who is nearly always first in his neighbourhood in the weight and health of his hives—who takes the honey from all his hives every autumn, and creates fresh stocks by feeding his bees. All this has been done without the use of artificial comb foundations. Such foundations if properly used would doubtless be helpful and profitable, but the facts mentioned now show that the practice of creating stocks in autumn by sugar-feeding is a good one, and will not be abandoned by bee-keepers of experience. Yesterday I obtained 2 cwt. of sugar to feed late swarms and driven bees, and I confidently expect that the driven bees lately hived will be my best stocks next season.

Now let me notice the fact that bees during the feeding process have a tendency to build too much drone comb. This tendency is common to all bees in hives not filled with combs. During times of great honey-gathering on the Clover and Heather, and especially before swarming, bees in such hives build far too much drone comb. Drone combs have larger cells than worker combs, and therefore in building them the bees have less work, fewer partition walls to erect; and hence, while gluts of honey are to be had, the bees instinctively build cells that give them the least trouble and that hold most honey. In hives not full of combs in spring bees usually build far too much drone comb; in doing so they anticipate the advent of young queens, and make full preparations for it. In the hives of second swarms less drone comb is built than is usual in the hives of first swarms, and this is doubtless owing to the fact that there is no likelihood of drones being needed in second swarm hives till the year following. Second swarms and turnouts are generally the most free from drone combs, and therefore are best for stocks, but often sugar-fed stocks have as little drone comb in them as second swarms, and therefore are unexceptionable for keeping as stocks. In creating them in autumn it is possible to glut and injure them by giving them too much syrup at once. If this be done drone and dumpy combs will be built, cells to hold honey will be built twice their usual depth, and thus the combs will be short and thick.

Our correspondent also wishes to know the size of hives used for sugar-fed stocks. The size of swarms to be fed should determine the size of the hives to be used. If a swarm or two united weigh 5 or 6 lbs., a hive 16 inches wide and 12 inches deep may be used. As it is desirable to have the hives nearly full of combs by autumn feeding, we advise our friend to err on the safe side by using hives not too large. The danger of having too much drone comb is very great in hives only half filled in autumn. The best ways of uniting bees and the houses that sell hives have been often noticed in this Journal.—A. PETTIGREW.

LIGURIANISING—A CAUTION.

I HAVE had some experience of late with the above that I think may prove interesting to many apiarian readers. The first of this breed I procured was in May this year, which I united with a swarm composed of flyers from an old straw skep. In course of time I took another swarm from the straw skep, and sixteen days after I took another, but too soon as it afterwards proved, for the young queen from the straw hive had not been mated, and had left no eggs nor grubs. She being in a bar-frame I soon discovered she was not laying, and therefore had left the old skep desolate. So I began to mend matters in the following way, with these results. After my queen (black one) had been eight or ten days in the new hive and not laying, I took her out and put her back into the parent hive, and took my Ligurian (mentioned above) out of her colony and gave her to the newly-made hive, caging her for two days. At first the bees accepted her kindly enough, but on looking two hours afterwards they had "balled" her, and she was dead! During her confinement they had formed queen cells, and therefore did not require her services. I procured another Italian, and gave her to the same bees, with all care, cutting out all queen cells; and as the eggs were then too old I thought they would be glad of my offering, and to all appearance they were, and for about twenty-four hours all seemed well, but to my dismay she was found dead on the ground the next morning. Undaunted, I again sent for another Ligurian queen; but I determined not to give her to the queen-killing swarm, so I made one for her in the following way, which proved successful. I took five bars from different hives with all the bees attached. I came to the conclusion that the old bees would return to their respective homes and leave only young bees and brood. It was three or four days before there was any traffic out or in the hive;

but very soon it proved a strong hive with a laying queen. This, I believe, is one of the best and safest plans I have heard of.

To come to the caution, and to return to our hive without a queen, which would not accept either queen cells or eggs. I had, as a last resort, given them a comb of eggs, and I was every day looking for queen cells to be formed, but none was formed. At last I was much struck by seeing numbers of eggs in the cells. I then began to search for a fertile worker; but instead of that I found a fine young black queen. How came she there? I will try and theorise. The eight or ten days she had been in the bar-frame she had gone out on a trip, and returned to the bar-frame that she had before returned to from similar excursions. She was in the bar-frame when I gave my last queen, and had only met with her after some twenty-four hours, for the bees themselves seemed to be perfectly friendly towards the strange queen all day. I might have seen the black queen sooner, only I did not take out any frame but the one I gave them with the eggs, as I looked upon it as the source of all hope. So again I would say, Be cautious!—COMBER, *Co. Down*.

REVIEW OF BOOK.

British Bee-keepers' Guide Book. By THOS. WM. COWAN, F.G.S., F.R.M.S., &c. Illustrated, 135 pages. London: Houlston and Sons, Paternoster Square.

THIS volume is a fitting sequel to the little manual of the British Bee-keepers' Association, which is necessarily of an elementary character. It is designed to meet the requirements of those who use moveable comb hives, and, by ignoring the skep system entirely, dispenses with many chapters usually found in bee books, thus affording a great amount of instruction in the bar-frame system within comparatively small compass. Its numerous excellent illustrations render the text perfectly plain to ordinary readers.

The style of the "Guide Book" is rather closely didactic, rendering it of comparatively little interest to non-bee-keepers, but assisting greatly in the condensation of its real matter. Throughout Mr. Cowan speaks as one having authority, pouring forth his mandates without often condescending to give his grounds for the same, and seldom quoting the authority of others. This is refreshing after some of the many scissors-and-paste bee books in circulation. The name of Mr. Cowan is so well known as that of an advanced and successful bee-keeper, that it is with hesitation we venture to offer anything like criticism of the matter of this volume. It strikes us, however, as presenting modern bee-keeping in the light of rather a complicated and expensive pursuit. The illustrations alone set before us an array of appliances quite formidable to beginners, and unfortunately it is that class who are generally least able but most anxious to become possessors of every vaunted improvement in the way of machinery. The more experienced the bee-keeper becomes, the more simple will be his hives and the fewer his mechanical appliances. It is, therefore, right we should warn beginners against the notion that all the articles described in the "Guide Book" are absolutely necessary. As Mr. Cowan is no dealer in apparatus he ventures without hesitation to describe such of these appliances as are more particularly connected with his own name. Of these we instance his form of hive and extractors as possessing features of very great merit. His winter ventilator we regard, however, as of little importance, and we think two pages might have been better employed than in describing and illustrating Mr. Cheshire's method for the prevention of robbing.

The real interest of the book lies, however, in the insight it gives us into the methods practised by so successful an apiarian as the author, and we venture to commend these to the attention of its readers, particularly the references to artificial swarming, spreading the brood, surplus comb honey, and doubling for the extractor. These are really the pith and marrow of the book, and deserve a much larger share of its space. We are not at all sure we can recommend the author's method of treating foul brood, as, having failed to cure it with salicylic acid, we almost believe it impossible to cure diseased combs in any other way than by consigning them to the melting pot. On the whole, however, we welcome the volume as a book up with the times, though we believe there is still room for another devoted entirely to the practical work of the apiary.

TRADE CATALOGUES RECEIVED.

James Veitch & Sons, King's Road, Chelsea.—*Catalogue of Bulbs.*
Sutton & Sons, Reading.—*Illustrated Bulb Catalogue.*
Webb & Sons, Wordsley, Stourbridge.—*Illustrated Bulb Catalogue.*
George Templeman, Prestwich, N.B.—*Catalogue of Selected Roses.*
F. C. Heinemann, Erfurt.—*General Bulb and Plant Catalogue.*



Roses from Cuttings (*W. Land*).—The information you desire is given by Mr. W. Taylor on another page of the present issue.

Budding Fruit Trees (*H. I.*).—The work may still be performed if the buds and stocks are in proper condition. The buds will remain dormant until the spring.

Drying Everlastings (*T. A. N.*).—Cut the flower-heads on a dry day, and place them on shelves in a house where they will be exposed to the sun and air freely. When dried they may be kept in any cool dry place.

Heating Greenhouse and Conservatory (*Idem*).—If you arrange for the pipes under the gravel path to have a slight rise from the greenhouse to the conservatory there is no doubt the apparatus would work satisfactorily, but if you intend the pipes beneath the walk to dip from the greenhouse and then rise again in the conservatory we doubt if it would work efficiently. The plan most likely to answer would be to have separate flow and return pipes from the boiler, having the latter so low as to allow of the flow for the conservatory being taken beneath the pathway with a slight rise from the boiler. The pipes from the boiler to the conservatory may be 2-inch, and with this arrangement they would be heated efficiently. We could not give an estimate of the cost.

Establishing Mushrooms in Pasture (*L. F.*).—The best plan we have known was inserting pieces of good spawn about 2 inches square in holes 3 inches in depth, filling up the holes with the loam removed, making it quite firm over the spawn. It is necessary that a dry time be selected with a prospect of its continuance to admit of the spawn spreading. The early part of June is the most suitable time, and with favourable weather Mushrooms will appear in six to eight weeks.

Weeds on Lawns (*R. B.*).—The small weed simply enclosed in a letter was so much dried as to be totally beyond identification. In all probability it cannot be eradicated except by drawing out the plants individually. If the weeds are numerous you might, however, try Watson's lawn sand on a small plot at first by way of experiment. It may be had from the leading nursery-men and seed merchants, and must be used in exact accordance with the instructions that accompany each packet.

Holly Hedge (*J. G.*).—Unless the hedge is protected there will be great risk of its being much injured by the animals, and possibly it may be destroyed. It is a matter of common prudence to prevent animals having access to all newly planted fences. One or two rails or stands of stout wire affixed to posts will render a fence safe from horses and cattle, the fence of course being placed at a proper distance from the hedge.

Select Hybrid Perpetual Roses—Mildew on Roses (*W. Booth*).—Alfred Colomb, Baronne de Rothschild, Charles Lefebvre, Duke of Connaught, François Michelin, John Hopper, La France, Madame Lacharme, Marquise de Castellane, Pierre Notting, Prince Camille de Rohan, and Sénateur Vaisse are good varieties, and will probably suit you. The mildew has been induced by a deficiency of moisture at the roots, and is very prevalent where water has not been freely supplied, and mulching over the roots has not been resorted to, along with syringing during the droughty weather. Dust whilst damp with flowers of sulphur.

Eucharis amazonica (*J. E., Kenilworth*).—As your plants are strong and healthy they will no doubt flower well next year, as the pots, we assume, are now well filled with roots. Keep them in a light position, and continue watering them as usual until the approach of winter, then gradually reduce the supplies, but at no time permit the soil to become really dry. Your object should be to obtain thick dark leathery foliage, and preserve it, without encouraging growth during the winter. If in the spring you can plunge the pots in a little bottom heat and then increase the supply of water the plants will flower freely: indeed healthy plants flower freely without bottom heat after they have had a period of rest. They will not need repotting.

Propagating Evergreens and Roses (*The Captain's Man*).—About the middle of September, or when the growths are partially matured, is a suitable time for inserting cuttings of Laurels and Aucubas. Choose short-jointed growths, securing a little of last year's wood at the base of each, and insert them rather deeply and firmly in sandy soil. If the weather proves dry they will need watering occasionally. An admirable method of striking Rose cuttings was described by Mr. Taylor in our issue of July 21st of the present year. We tried the plan after reading the article in question, and now have a number of well-rooted plants. Cuttings will also strike if inserted in the open ground at the present time, choosing tolerably firm wood, and making the cuttings about 6 inches long, removing all the leaves except the top pair, and inserting the cuttings quite up to these leaves in a rather shaded position. They must be made quite firm, and be sprinkled as often as is necessary to keep the foliage fresh. Read also what Mr. Taylor wrote on keeping the cuttings fresh and moist. This is a matter of the greatest importance.

Judging at Shows (*W. G.*).—Nothing brings horticultural societies into greater disrepute than employing judges who are not experienced in the work of making awards. All good gardeners are not good judges, and we have not infrequently seen some of the best of cultivators in a state of nervousness that led to bewilderment when endeavouring to make the awards when there has been close competition. As a rule it is a wise course to secure judges who do not reside in the district in which a show is held, and it is extremely desirable that they be fairly remunerated for their services. The show to which you allude appears to have been unusually ill-judged. We have seen mistakes made occasionally; but after having visited, say, five hundred exhibitions, we have not been so unfortunate as to witness one where "all the worst plants and vegetables had the best prizes." We presume economy has been exercised, and it has proved false. The remedy we have indicated.

Propagating Carnations (*Reader*).—If you have a little bottom heat, such as a bed of fermenting materials, we should convert the pipings into cuttings by severing them close under a joint, removing, slipping off, the lowest pair of leaves, and shortening those above them. These, if inserted in moist sandy soil and covered with a handlight, will root more quickly than slips inserted in the open ground. For the open air slips are preferable to cuttings,

the lower leaves being removed before the pipings are inserted. Your Grapes ought to be in good condition in from eight to ten weeks after they commenced colouring. Cannot you test them yourself?

Walcheren Cauliflower (K. C.).—The information you seek has been frequently given in our "Work for the Week." Your district being late you ought to have sown still earlier than the date given, as, unless the plants produce heads in the autumn, they will be useless, as large plants of this variety are nearly always killed in the winter. If your plants are strong and the autumn is mild they may afford heads in October and early November; if they do not, and the plants are dug-up and laid-in closely together in frames, covering the roots with moist soil, and are protected from frost, they will form heads in the winter. It depends entirely on the weather as to whether your plants will form heads in the open air this autumn; they may do so in a sheltered position, and if not you must not expect them to stand the winter uninjured. We do not consider the advice you quote as sound and satisfactory, and we are sorry you did not write to us before. We are always ready to impart information, and we think it is reliable. The period from July 10th to 20th is too late for sowing for producing plants for use the same season, and too early for those intended to pass the winter without protection.

Lifting Vines (Craven).—The proposed plan of lifting the roots in the outside border will succeed if performed carefully and with as little delay as possible after the wood is mature. The soil should be removed carefully from the roots so as to preserve them from injury, they should also not be exposed to the drying influence of the atmosphere any more than is absolutely necessary. Remove every portion of the soil down to the concrete, and then see that there is a 3-inch tile drain laid with proper fall and outlet. One drain will be sufficient for a 6-foot border. Place in a foot depth of rubble, stone, brickbats, or other material, the coarsest portion at bottom. If there is depth so as to leave 27 to 30 inches of space over the drainage for soil the drainage may be increased, but should not be less than 1 foot. Cover the drainage with a layer of turves grass side downwards, and then place in the compost, laying out the roots according to their inclination, keeping them as near the surface as possible. Those from the collar should be laid out 4 to 6 inches beneath the surface. The compost must be made moderately firm about the roots, and any dead or decayed parts may be cut away. Give a slight supply of water at a temperature of 90° to 100°, and mulch over the roots with 4 to 6 inches thickness of rather short manure. The lights should be placed over the borders so as to throw off cold autumn rains. The surface 3 inches of a pasture over limestone will be suitable, a tenth of old mortar rubbish being added to it, with a fortieth part of half-inch or crushed bones, and the same proportion of charcoal and wood ashes may be added. Reserve horse droppings for surface dressings.

Bridal Bouquets (Improver).—It should be 9 to 10 inches in diameter, the surface slightly convex, broken occasionally by a raised flower or spray of Maidenhair Fern, Selaginella caesia, or Pelargonium filicifolium odoratum. Three or four stems may be left long enough to reach to the bottom of the bouquet-holder, but all the others should be shortened to an inch or two, enveloped in damp cotton wool, which is bound on securely with fine brass wire, enough wire being left on to form an artificial stem. Prepare sufficient flowers and spray beforehand, and also have ready a handful of damp cotton wool; then proceed from the centre outwards, not with formal circles, each of one kind of flower, but with a skilful, tasteful blending of form with form sufficiently to impart relief and variety. Or there may be a grouping of three or four flowers of each sort without any approach to heaviness. Prevent crowding and confusion by pads of the damp cotton wool between the flowers, drawing out the wool of each pad at the bottom sufficiently to enable you to twist it two or three times around one of the wire stems, so that there may be no risk of any being shaken out while the bouquet is being used. The damp wool also serves to keep the flowers fresh and unwithered. If the bouquet has to be made some hours before it is used avoid all flowers that shed easily—white Jasmine is very prone to shed its flowers soon after they are cut. Twist the wire stems securely together so that no flower can be displaced, and make the bottom of the bouquet level, so that the bouquet paper may easily be slipped up close under the flowers and kept there by sewing it to them with a needle and white cotton.

Plants for Stocking Borders (G. A. D.).—The border near the Laurel hedge we should plant with herbaceous and bulbous plants, so as to give a succession of flowers over a lengthened period. Plants suitable for such a border are Anemone japonica alba, A. fulgens, Anthericum Liliastrium, Antirrhinum vars., Aquilegia vars., Arabis alba variegata, Aster Amellus, Aubrietia grandiflora, Daisies (double), Borago laxiflora, Calochortus luteus aculeatus, Calla palustris plena, Campanula isophylla, Convallaria majalis, Corhularia Bulhocodium, Cyclamen hederifolium, Delphinium Belladonna, Dianthus neglectus, D. Napoleon III., Mule Pinks, Dodcatheon Meadia and var. alba, Erythronium Dens-canis, Fritillaria Meleagris, Fuchsia corallina, Gentiana acaulis, Geum coccineum flore-pleno, Gladiolus vars., Helleborus niger and var. maximus, Hemerocallis lutea, Hepatica triloba vars., Hyacinthus candicans, Iberis coraeifolia, Iris germanica vars., Liliun vars., Muscari botryoides, M. comosum, Myosotis dissitiflora, Narcissus Ajax, N. bicolor, N. incomparabilis vars., N. minor, N. poeticus and var. plenus, N. Pseudo-Narcissus, Nepeta Mussini, Enothera macrocarpa, Omphalodes verna, Paeonia humilis, P. sibirica, P. tenuifolia plena, Penstemon vars., Phlox divaricata, Primula acaulis vars., Alpine Auriculas, Pulmonaria azurea, Pyrethrum (double) vars., Ranunculus amplexicaulis, Saxifraga longifolia, Scilla sibirica, Sedum atropurpureum, Senecio pulcher, Sisyrinchium grandiflorum, Spirea japonica, S. palmata, Trollius europeus, Triteleia uniflora, Veronica prostrata. To these may be added such bulbs as Crocuses, Tulips, Colchicums, Snowdrops, and such plants as Pansies, Carnations, &c. The border near the low hedge we should devote to Roses, dwarfs, on the Manetti or on their own roots, with sweet-scented annual or showy low-growing annuals. The borders near the house we should fill with bulbs in winter, and with flowering bedding plants in summer.

Properties of the Carnation (R. Martin).—You will find our manual on "Florists' Flowers" very useful, and it can be had from this office in return for 4½d. in postage stamps. The following extract from it will answer your inquiry:—"The Carnation has the marks on its petals from the centre to the edge, and through the edge in flakes, or stripes of colour. The Picotee has its coloured mark only on the outer edge of its petals. *Properties of a good Carnation.*—Carnations are divided into five classes, namely:—1, Scarlet Bizarres; 2, Pink or Crimson Bizarres; 3, Scarlet Flakes; 4, Rose Flakes; 5, Purple Flakes. Bizarre is a French word, meaning odd or irregular; the flowers in these classes have three colours, which are irregularly placed on each petal. Scarlet Bizarres have that colour predominating over the purple or crimson, but the Pink or Crimson Bizarres have more of these colours than the scarlet. Scarlet Flakes are simple white grounds with distinct stripes or ribbons of scarlet. Rose and Purple Flakes have these two colours upon a white ground. The properties in other respects are—1, The flower should be not less than 2½ inches across. 2, The guard or lower petals, not less than six in number, must be broad, thick,

and smooth on the outside, free from notch or serrature on the edge, and lapping over each other sufficiently to form a circular Rose-like flower; the more perfectly round the outline the better. 3, Each layer of petals should be smaller than the layer immediately under it; there should not be less than five or six layers of petals laid regularly, and the flower should so rise in the centre as to form half a ball. 4, The petals should be stiff, free from notches, and slightly cupped. 5, The ground should be pure white, without specks of colour. 6, The stripes of colour should be clear and distinct, not running into one another, nor confused, but dense, smooth at the edges of the stripes, and well defined. 7, The colours must be bright and clear, whatever they may be; if there be two colours, the darker one cannot be too dark, or form too strong a contrast with the lighter. With scarlet the perfection would be black; with pink there cannot be too deep a crimson; with lilac, or light purple, the second colour cannot be too dark a purple. 8, If the colours run into the white and tinge it, or the white is not pure, the fault is very great, and pouncy spots or specks are highly objectionable. 9, The pod of the bloom should be long and large, to enable the flower to bloom without bursting it; but this is rare. They generally require to be tied about half way, and the upper part of the calyx opened down to the tie of each division; yet there are some which scarcely require any assistance, and this is a very estimable quality. 10, Decided superiority of perfume should obtain the prize when competing flowers are in other respects of balanced merit. *Properties of a good Picotee.*—Picotees are divided into seven classes. 1, Red, heavy-edged; 2, Red, light-edged; 3, Rose, heavy-edged; 4, Rose, light-edged; 5, Purple, heavy-edged; 6, Purple, light-edged; 7, Yellow grounds, without any distinction as to the breadth of the edge colour. The characteristics of good form are the same as for the Carnation; but with regard to colour—1, It should be clear, distinct, confined exclusively to the edge of the petals, of equal breadth and uniform colour on each, and not running down (called sometimes feathering or harring), neither should the white ground run through the coloured border to the edge of any one of the petals; 2, The ground must be pure white, without the slightest spot. *Disqualifications of a Carnation or Picotee.*—1, If there be any petal dead or mutilated; 2, If there be any one petal in which there is no colour; 3, If there be any one petal in which there is no white; 4, If a pod be split down to the sub-calyx; 5, If a guard petal be badly split; 6, Notched edges are glaring faults, for which no excellence in other respects compensates.

Name of Fruit (G. P., Hants).—It is apparently the Bryanston Gage, but a little young wood and a few leaves are necessary for the satisfactory determination of the names of Plums.

Names of Plants (J. C.).—The specimens sent in an envelope arrived completely crushed and withered, and were consequently quite unrecognisable. (W. N.).—Oxalis corniculata rubra; it is often used as an edging plant in flower gardens, and is quite hardy. (A. A. M.).—The single flower spike is Lavandula vera; the other is Lavandula dentata. The leaf resembles Aralia reticulata. (Rosa).—Encomis punctata, a native of the Cape of Good Hope.

Removing Supers—Feeding Bees (E. S. W.).—Unless in exceptional localities where late flowers such as Heath abound, there is almost no prospect of getting supers finished off now. You had better remove the glass super at once, on the principle that "half a loaf is better than no bread." At the same time all empty supers should be removed. Such as contain a little sealed honey, but too little to render it worth while breaking up the comb, should have the cells unsealed with a knife and be replaced for a few days to allow the bees to carry down the contents. If the supers be then carefully wrapped in paper and stored in a dry place they will be valuable helps towards early storing next season. As your hives appear to be sufficiently supplied for wintering, we do not see any necessity for autumn feeding. Generally, stocks have this season kept up breeding later than usual, and it will be enough to see that those only that are light should now be fed up quite rapidly, leaving stimulating feeding till early spring.

Holy Land Bees (An Old Subscriber).—The queens were brought from Palestine by Mr. D. A. Jones of Canada. They were each packed in boxes 7 or 8 inches square with ample ventilation at the sides, the openings being covered with wire gauze, which admitted of a thorough draught of air. In order to provide the necessary sustenance for the queen and the two or three hundred bees that accompanied her, candied sugar was run in at one corner of each box. This requires moisture to be edible by the bees, and Mr. Jones frequently supplied a small quantity of water during the journey. Some consignments of queens that have since arrived unattended were furnished with a small bottle of water, the liquid being allowed to ooze out at a slit cut in the cork. This plan, however, does not appear to have fully answered for so long a voyage, very few queens arriving alive. For shorter distances of transit queens are frequently sent successfully with the latter provision.

Brood Comb—Diluted Honey—Old Queen (F. J.).—The comb sent has not anything about it that is noticeably peculiar. It is drone comb containing healthy pupae, which are scattered, and so show conspicuously the rounded sealing which covers them. The comb has evidently been built where there has been scarcely room to accommodate it, as the cell walls are hardly so much elongated as is usual. In diluting honey for feeding, boiling water is more convenient than cold, and about equal quantities of water and honey will bring the food to the right consistency. Hives rarely suffer from the natural decrease of queens when the bees have no power to replace them, as they quite usually supersede decaying queens by raising young ones. Possibly this has been the case in the hive in question, which is evidently doing too well to give occasion for anxiety.

COVENT GARDEN MARKET.—AUGUST 24.

LARGE quantities of Grapes still arriving from the Channel Islands are keeping down the price of home-grown. A good supply of Apples has reached the market during the last week, but clearing at very low prices.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	1	0	0	3	Lemons.....	½ case	12	0	18	0
Apricots.....	doz.	1	0	1	6	Melons.....	each	2	6	3	0
Cherries.....	½ lb.	0	0	0	0	Nectarines.....	dozen	4	0	10	0
Chestnuts.....	bushel	0	0	0	0	Oranges.....	½ 100	4	0	8	0
Currants, Black ..	½ sieve	6	0	0	0	Peaches.....	dozen	4	0	9	0
" Red....	½ sieve	3	6	4	0	Pears, kitchen ..	dozen	0	0	0	0
Figs.....	dozen	1	0	2	6	dessert ..	dozen	1	0	2	6
Filberts.....	½ lb.	0	0	0	6	Pine Apples	½ lb.	2	0	3	0
Cobs.....	½ lb.	0	0	0	0	Strawberries	per lb.	0	0	0	0
Gooseberries.....	½ sieve	0	0	0	0	Walnuts	bushel	0	0	0	0
Grapes.....	½ lb.	0	9	4	0	ditto.....	½ 100	0	0	0	0

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	0	0	Mushrooms.....	punnet	1	0	1	6
Asparagus.....	bundle	0	0	0	0	Mustard & Cress ..	punnet	0	2	0	3
Beans, Kidney	½ lb.	0	3	0	6	Onions.....	bushel	3	6	5	0
Beet, Red.....	dozen	1	0	2	0	pickling.....	quart	0	0	0	5
Broccoli.....	bundle	0	9	1	6	Parsley.....	doz. bunches	3	0	4	0
Brussels Sprouts..	½ sieve	0	0	0	0	Parsnips.....	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Peas.....	quart	0	9	1	3
Carrots.....	bunch	0	4	0	6	Potatoes.....	bushel	3	9	4	9
Cap-sicums.....	½ lb.	1	6	2	0	Kidney.....	bushel	4	0	4	6
Cauliflowers.....	dozen	0	0	3	6	Radishes.....	doz. bunches	1	6	2	0
Celery.....	bundle	1	6	2	0	Rhubarb.....	bundle	0	4	0	6
Coleworts.....	doz. bunches	2	0	4	0	Salsafy.....	bundle	1	0	0	0
Cucumbers.....	each	0	4	0	6	Scorzonera.....	bundle	1	6	0	0
Endive.....	dozen	1	0	2	0	Seakale.....	basket	0	0	0	0
Fennel.....	bunch	0	3	0	0	Shallots.....	½ lb.	0	3	0	0
Garlic.....	½ lb.	0	6	0	0	Spinach.....	bushel	3	0	0	0
Herbs.....	bunch	0	2	0	0	Turnips.....	bunch	0	4	0	0
Leeks.....	bunch	0	3	0	4	Vegetable Marrows	each	0	0	0	2



POULTRY AND PIGEON CHRONICLE.

THE ROYAL COMMISSION ON AGRICULTURE.

(Continued from page 166.)

IN proceeding with the subject it is requisite that the amount of farm capital to be employed should be considered. In justice to both landlord and home farmer we may assume that anything relating to the improvement or maintenance of the buildings, house and homestead, cottages, roads and fences, including draining and expenditure upon other improvements invested for the purpose of enhancing the letting or occupation value, should be considered as landowners' fixed capital as when invested in a purchase. The working or moveable capital on the home farm, however, may be said to consist of, first, the live stock, whether kept for fattening purposes for the production of meat, for milking purposes, or merely as store for breeding animals for the production of wool, &c., or as furnishing the means for cultivating and marketing of produce. Second, the corn growing or in stock, hay, straw, fodder, and roots as the food stored for animals, or the natural or artificial Grass, Clover, Saintfoin, or other green fodder crops growing for their consumption. Third, the machinery required for cultivation, or for preparing and marketing the produce. Fourth, cash required to meet the charges connected with the labour of preparation of the land—the manuring, seeding, harvesting, thrashing, and marketing the corn and pulse crops—the tradesmen's and other bills required to keep everything in repair and working condition, also to pay the Government and parochial rates and taxes, and the tithe rent charges.

We have been rather particular in enumerating the different items as above named, because it is usual and desirable for proprietors who undertake the occupation of their land to place themselves in the position of tenants by separating the accounts and charging the amount of rent which might be obtained if the farms were let. The amount of landowners' capital cannot be stated, for the value of land and its appurtenances will vary greatly on account of soil, situation, and climate. The working capital on the home farm we can estimate by approximation, for in our own business we have found that upon the large outlying hill farms the required capital would vary from £10 to £12 per acre. Upon smaller farms, under new and improved systems of stocking and cropping, it would vary from £15 to £18 per acre, or even more in some instances, because it will be found under certain circumstances that the best systems, and those which yield the greatest money returns, will require an investment of money far beyond anything known in ordinary farming, especially if market garden farming is carried out.

In the evidence obtained by this Commission a frequent cause

of failure and agricultural depression in various districts is stated to have occurred through an insufficiency of capital employed. It also shows the fact of the strongest soils not only requiring much costly labour in working, but suffering also more than drier soils from the effect of wet and unpropitious seasons. This fact leads us to the cultivation and rotation of cropping; and as the clay soils have suffered most, we will endeavour to show the home farmer the latest and most approved changes recently made in the management of these soils. Much has been said by various advisers of the home farmer, recommending to his notice the policy of laying strong clay land down to permanent pasture, especially where it is flat-lying. But when we consider the serious losses by the rot in sheep, and in various instances of cattle also from feeding on cold flat-lying pastures, there is not much encouragement to be found for extending the acreage of permanent pasture upon such land. We prefer to cultivate such land upon a rotation whereby the crops may be—first fallow, followed by Wheat, seeded with Clovers and pasture Grasses to lie two or three years, then to be followed by part Oats or drage, and part Beans. The benefit of this rotation is, that during the six years we may obtain pasturage from half the arable land, and yet have the advantage of a change in cropping if cereals should become dearer from unforeseen causes, because the two years of old lea may then be omitted in the rotation, but resumed at any time to meet certain contingencies and emergencies. Nor must we lose sight of the fact that under this rotation half the farm would be not only in grass of more value than any permanent pasture on similar soil, but for the purpose of the growth of either cereal or pulse crops, as the land will have received the benefit of rest for three years, with an accumulation of manuring elements during that period.

Before we proceed further on the questions of stocking and cropping we must call the home farmer's attention to his unfettered and unbiased position, except through matters entirely relating to the profits of the farm, for his business will suffer to a certain extent through the depression in agriculture which prevails, as represented by the evidence given before the Royal Commissioners. In this evidence we find it roundly asserted by some of the most experienced farmers that they could not grow Wheat with profit at the prices now obtained, and in consequence numerous farms throughout the kingdom have been thrown upon the owners' hands. Yet the arable farms of Messrs. Prout and Middleditch, where corn and straw are almost the only saleable products grown, have been conducted with more or less profit up to the present time, and with scarcely any live stock kept either for working purposes or for the production of meat by fattening animals. Fertility has been maintained for a series of years and valuable crops produced almost entirely by the aid of steam power in cultivation and the application of artificial manure; and as Mr. Prout has published a pamphlet describing his position as owner and occupier from the time he purchased the land up to the present, it must be accepted as truthful, because all his crops have been sold annually as they stood in the field, both straw and corn together, by public auction, the results of which sales have always been published in the agricultural papers of the time. On the perusal of this pamphlet both landed proprietors and home farmers will be enabled to understand how agricultural depression has been evaded, or only slightly felt, by Mr. Prout, either as landlord or tenant. The consideration of the comparative position of the home farmer who cultivates and produces stock and corn combined in somewhat the usual manner and the system adopted by Mr. Prout, is of the highest importance, whether we view it as a matter of theory or a practical method of agriculture, for under any circumstances in which either the landowner or home farmer can be placed it is full of interesting matter of the highest value, and we highly commend it to their perusal and serious consideration.

Endeavouring to advise the rotation of crops for corn-growing chiefly will be rather difficult, but not so upon land in hand or set apart from the home farm proper; for upon most home farms attached to pasture and park land a certain amount of the various sorts of live stock are almost a necessity, and frequently entirely so. We must therefore consider what can be done by feeding and fattening stock on the home farm in the face of agricultural depression and the rotations required, leaving the subject of corn-growing only upon outlying land in hand for consideration hereafter. In case the home farm is situated on the hill districts we see no better rotation than the five-course, especially on the lightest land—viz., Wheat, green crops and roots, Lent corn and grass seeds to lie down two years, the Clovers to be mixed with Timothy and Perennial Rye grass. If in the second year of grass the land should become foul pure and burn before the Wheat is sown, for this insures a clean Wheat stubble. On the vale or

strong loamy parts of these farms a three-course may be adopted for the produce of sale crops only—viz., Wheat, Lent corn, pulse, Rye, April Wheat or Potatoes, Beans, Peas, or seed crops of various sorts in most demand, such as Turnip, Mangold, Clover, Vetches, Trifolium, &c., for we have frequently seen some of these seed crops make more money than any cereal crop per acre. Irrespective, however, of the rotation of crops above named a portion will, of course, always be in Saintfoin, also some of the land before roots will be sown with winter Oats, Rye, forward white Oats, or April Wheat, to be either fed off as spring food, or cut for straw, or used like American Oat hay, and followed by Mangolds, Swedes, Rape, and Turnips. Any of these modes of close cropping will not be entirely dependant upon horse labour for cultivation, because we have steam power, which takes so little time in its work is particularly well suited for cleaning the land between the crops. We have also the advantage as regards manure of the sheep in consuming root crops on the outlying land, which supersedes the dung cart entirely. In the same manner artificial manures applied to those crops on the vale land taken in quick succession proves very satisfactory, for their application is quickly done without hindrance.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—When the weather is fine the horses will be employed in working the reaper and mower, the new string binding machines being the best, as reported by the Judges at the trials in Derbyshire connected with the meeting of the Royal Agricultural Society. These trials were made on crops of Wheat and Oats upon Mr. Hall's farm, Thulston, Derby. The result has been decided according to the value of the work done. The gold medal to the McCormick Harvesting Machine Company for their reaper and binder; two silver medals, Messrs. Samuelson & Co., and the Johnston Harvester Company; highly commended, Mr. H. J. H. King for principle of tying and separating sheaves. For some time past the weather has been very variable, and where cutting corn took place without binding much of it has laid on the land, taking damage by the late rains, especially Barley in those cases where the binders did not follow the reaping machine and keep pace with it while the straw was dry. The rains we had, however, have proved very beneficial to the root crops, and our first sowing of stubble Turnips are now nearly fit for hoeing. Nevertheless, where stubble Turnips are required it is not too late to drill the seed now. As the land is moist the seed will vegetate immediately, and the young plants will grow fast, especially when drilled with a generous supply of superphosphate and ashes; it is also favourable for the sowing of Trifolium, Vetches, and Rye. The land after Peas and seed Vetches if intended as a backward fallow for Wheat should, if foul with couch, either be ploughed shallow or rafter-ploughed, so the scarifier or Howard's self-lifting drag may pull through the land and comb out the couch. We often use only a strong one-horse cultivator, such as an ordinary horse-hoe with the plain tines on set wide apart; this is only light work for one horse, and two of them would scarify four acres and a half in a day, and do the work well if driven across the ploughed furrows, and afterwards the land may be harrowed and rolled, and the couch carried away to a heap; it will then require but little labour as compared with burning, and can be done also in showery weather, and the land be quickly ready for the next ploughing. The lea ground after Clover on the hill farms may now have the dung laid out and ploughed in and the land pressed, there to remain and become mellow for the sowing and drilling of Wheat in the early part of October.

Hand Labour.—Men will be required for harvest work for some time yet tying Barley behind the mower, except on those farms where the home farmer has the self-binding machine in use. The women can follow and set up the sheaves, and when making up the stooks care should be taken to have them settled in close together at the top to keep out the wet; the crop will then take a deal of rain without staining the colour of the grain, as is done when the crop lies on the land ready for harvesting as loose corn. Turnip-hoeing, and the second hoeing of Swedes, Carrots, and Cabbage should now be finished at the first opportunity. If the land is too wet for hoeing filling the dung carts will be going on, also hedge-trimming.

Live Stock.—All the sheep required on the farm may now be purchased; if ewes to breed early lambs the rams should be obtained and placed with them, the ewes being fed with generous diet, including cake on pasture grass or lea ground at daytime, with a folding of Rape and Turnips or Mustard at night. This management generally induces the ewes to be early, especially if some cotton cake is given in addition to the grass and roots. Throughout the country, both north and south, east and western districts, the fine rains which have fallen have improved the growth of grass immensely, and both sheep and cattle when feeding on the pastures will be greatly benefited. Those which are feeding for the butcher will soon be ready or far advanced towards maturity, whilst those kept as store stock will be got forward in condition ready for future fattening. This has been a fine season for sheep kept on the strong soils, where they are often fed upon summer Vetches entirely as green food, but daily

receiving a liberal allowance of cake, in which case the animals make good proof; and the land if intended for Wheat will be in good condition for seeding without any dung carting—a matter of immense importance upon the outlying fields of the home farm. All the young cattle, both heifers or steers, whilst grazing in the low-lying meadows should be taken at night into some dry pasture, unless there are dry patches in the meadows, of which they will not be slow to avail themselves as a night lair. We are rather particular in naming this, because it is the best way to avoid the quarter-evil which often attacks young cattle, especially the heifers, for we find the steers more hardy and often resist diseases of this nature. The fattening cattle in the boxes should now have early Turnips cut and mixed with oilcake; and in seasons like the present, when both hay and straw are scarce, a more liberal allowance of crushed Maize should be given with sweet Oat straw chaff in addition to the usual allowance of cake, which may be decorticated cotton cake for a month or two, but afterwards changed to best linseed cake. The dairy cows have this year during the summer months been very short of grass on all dry pastures and parklands; but in those cases where a supplementary allowance of cake or bran and Maize, or such like substitutes has been given, they will have held on well in condition and giving a good supply of milk, for the cost of extra food will have been money well expended, because now the autumn grass is come in abundance the cows will continue to yield a full supply of milk, so that the milking capacity which has been maintained during the summer will also enable the cows to continue yielding milk for a longer period in the autumn months.

VARIETIES.

THE LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.—We are informed that the inquiries for entry forms for this Show are numerous, and several entries have already been made. Much interest is being shown in the north division of this county where Louth is situated, and there is every indication of a successful exhibition.

— EGG PRODUCTION IN THE ORKNEY ISLANDS.—These islands appear to be good egg-producing districts, as from trustworthy statistics it has been ascertained that during the last twelve months more than 11,000,000 have been sent by steamers and sailing vessels to southern markets. From the various ports in Orcadia 7023 boxes of eggs were exported. These boxes contained from 120 to 160 dozen each; and taking the average at 140 dozen, this gives 983,220 dozen, or 11,798,640 eggs. A fair estimate of this enormous number is got by an average of 8d. per dozen, which is rather under than over the real value here. This gives a total value of £32,774—more than half the free rental of the county, and equal to 20s. per head of the entire population.—(*British Mercantile Gazette.*)

— EGGS FROM DIFFERENT BREEDS OF POULTRY.—A correspondent of an American newspaper gives the following as the result of extended observations—

	No. per annum.	No. to lb.
Light Brahmas	130	7
Dark Brahmas	120	8
Cochins	125	8
Plymouth Rocks	150	8
Houdans	150	8
La Flèche	130	7
Spanish	140	7
Leghorns	160	9
Hamburgs	150	9
Polish	125	9
Bantams	90	16

— HOW THE FIRST WHEAT WAS SOWN IN AMERICA.—Now that our American cousins are reducing the British farmer to despair by their enormous exportations of Wheat, it may be interesting to recall the fact that until about the end of the first quarter of the seventeenth century—that is to say, 250 years ago—England supplied the North American colonies with most of their Wheat. Since that time, however, North America has been gradually growing more independent in the matter of the supply of bread stuffs. Wheat was first sown in those colonies in 1592, Gosnold, the traveller, scattering the first seeds on the Elizabeth Islands, in Massachusetts, during his exploration of that coast. It is curious to reflect that it was English energy and daring which first of all supplied America with the means of entering, nearly three centuries later, into a disastrous competition with the mother country.—(*Lancet.*)

— PRODUCE OF MEAT FROM AN ACRE OF GRASS.—It is stated on good authority that an acre of the best Lincolnshire grazing land—and it is a county famous for its grass—will carry an ox and a sheep from New Mayday till Old Michaelmas, and that while grazing

during this period the former will gain 280 lbs., and the latter 40 lbs. in nett weight of meat when slaughtered. The acre will thus yield 320 lbs. of meat. Its produce of grass may be 16 tons, perhaps more. This is 1 lb. of meat for every hundredweight of grass; but we must remember that the grass of such land differs from the average in the quality as well as the quantity of its product.—(*Irish Farmers' Gazette*.)

—EXPERIMENT IN POTATO GROWING.—An experiment has been tried by Mr. Tom King, Lion Hotel, Llanymynech, in producing a large crop of Potatoes from a comparatively small quantity of seed. Mr. King took a pound of Potatoes, second early variety, and allowed these to spirt freely. From each broke a spirt, the total weight being half an ounce. He then planted the Potatoes and spirts in separate rows. The latter appeared to grow more uniformly, and to be in a more healthy state than the growth of the former. The following is the result of the experiment:—From the half ounce of spirts he has obtained 5 lbs. 5 ozs. of sound Potatoes, and from the pound of Potatoes 5 lbs. 4 ozs., showing a larger yield from one spirt than from a single Potato. The two lots will stand a good comparison. Those grown from spirts are evidently earlier, firmer, and more regular in shape and size than those obtained from the seed Potatoes. There is in this case a total yield of nearly elevenfold by weight.—(*Coventry Advertiser*.)

POULTRY AND PIGEONS

POULTRY NOTES.

THE following extracts from a letter published in *The Field* are of interest in reference to the recent discussion in these columns and elsewhere as to the relative merits of the Dorking of the past and the Dorking of the present. The writer says—

"My first recollection of Dorkings is now more than forty years old. I remember some birds being brought from Sussex in 1840 or 1841, into a district in Norfolk, which even then enjoyed a reputation for fattening prime poultry."

"I remember that not on one farm only, but on several adjoining ones, the use of the Sussex-bred cocks was followed by so great an improvement in size and early fitness for spring chickens that the local higglers remarked on it and scrambled for the produce."

"The ordinary run of well-fed chickens in that district in autumn and winter used to be about 4 lbs. to 5 lbs. per bird when dressed for table. The use of the Sussex cocks increased the weight fully to 6 lbs. to 8 lbs.; and I remember a special case of a pullet—bred from the Sussex stock on both sides—being sent as a present at Christmas to a friend taking pride in poultry, which weighed 9 lbs., dressed for table. It thus will be seen that genuine Dorkings, before a single specimen of the Cochin had been imported, were not small. Still less were they tender. I remember that, having heard of the wonderful new-comers, a skilful poultry woman obtained a cockerel and two pullets. I remember, somewhere about 1841 or 1842, these birds being brought home, and then rearing large broods the first season, which roosted on the trees. I recollect finding, one Christmas morning, an early pullet of their produce sitting upon a stolen nest of eleven eggs in a woodstack, and that every egg produced a chicken, and that all were reared."

"I remember that, although the two original pullets purchased were both of the markings which were then called 'brown-spangled' (they were selected from a large yard as being as much of a match as was possible to find), not all their chickens were brownish, like themselves. Some were so; others were grey, grey and white; but the cockerels were mainly black-breasted, with here and there a few white feathers on the breast and in the tail and wing. There were both single and rose-combs among them."

"My poultry experience came to an end in 1843 or 1844, and I had none, and saw few, till about 1853-4. By this time shows had begun, and Capt. Hornby had made himself prominent among exhibitors of Dorkings. The poultry upon the homestead—where in 1838-40 there had been such success—had dwindled into comparatively poor things, rumpish and thin. I determined to go, as I thought, to the fountain head, and I gave Capt. Hornby four guineas for a dozen eggs. I remember that I wished to recover the old brown-spangled sort, and asked for eggs of that kind, and that I was cautioned that 'Capt. Hornby would not warrant his birds breeding true to feather.' Nor did they. I had greys, spangled, and at least two with only four toes; but they were all fairly close-feathered (not like Game, yet quite unlike the modern loose-framed, loose-plumaged birds); they all were clean-legged, white-footed."

The writer next comments upon the good useful qualities of the

pre-exhibition Dorking, and upon the want of uniformity in colour and even in number of toes amongst the birds first exhibited, and concludes with the following paragraph—

"I have thought it worth while troubling you with these recollections because, as it seems to me, poultry-breeding on farms may be much improved by bearing in mind what is constantly being done with sheep and cattle. There are tup and bull breeders who take infinite pains with their flocks and herds, in order to obtain sires capable of conveying to cross-bred produce the points those cross-bred shearlings and bullocks are wanted to possess. The men who take the lead in breeding bulls and tups do not tolerate cross-breeds, although they look forward to their animals being used for cross-breeding. Poultry keepers should do the same. For winter laying one cross is most suitable, and another is best for early spring chickens. For table poultry, to be consumed in autumn and winter, yet another type is preferable. But to produce any of these, pure-bred sires are highly necessary, and these must have the special points required concentrated by close breeding. But the modern show Dorking is not at all the best possible sire for this purpose. It may be doubted if it be equal to its predecessor for any purpose. And it may be doubted if any better breed than the old Dorking for table poultry early in the year ever existed anywhere. The Houdan, its main rival, seems an offshoot from it. But cross-breeding is not my present subject. I would maintain that the Dorkings to encourage at the shows are not those whose eggs, feet, feathers, and legs indicate a cross; but those whose shape, skin, and thick flesh argue an unmixed descent from our valuable old English breed, which had all those points good. Such birds could be had even now by judicious selection; but one must not go to prize-winning yards to make the selection."

THAT Mr. Harrison Weir may have the full benefit of "PLASTIC'S" testimony upon his side of the question, we add another extract which we had at first passed over from this interesting letter—

"I may, however, once more be allowed to state that, although the modern stamp of Dorking retains size, this size is accompanied by bigger bone, loose feathering, sooty feet, and tinted eggs—a combination of phenomena which point the minds of all who are not resolutely bent on resisting evidence to an inevitable conclusion that the Dorking of the period is a cross with the darker variety of Cochin."

In a footnote to "PLASTIC'S" letter, the Editor of *The Field* states that the large coloured Dorkings first shown by Mr. J. Douglas were the result of a cross with a cock of a large coarse-boned Malay, or Kulm breed, sent to the Zoological Gardens by an officer in India.

WHILST content to leave the discussion of the Dorking question to others, we desire to say a word or two as to the laying qualities of the breed. We know that the general concurrence of testimony goes to show that Dorkings are not good layers. We do not know whether the old breeders allege any falling-off in this respect as one of the demerits of the modern Dorking. Some of the supporters of the modern Dorking claim credit for having effected an improvement in the laying qualities of the breed. We shall be very pleased to have particulars, from those of our readers who keep Dorkings, as to the average number of eggs per annum which their birds produce. Not very long ago one of our readers recorded a case in which white Dorkings produced 160 eggs per annum each. We once had some Silver-Grey pullets which were exceptionally good layers. We cannot give any precise figures as to the number of eggs each laid in the year, but we well remember that one of them laid thirty-six eggs in thirty-five days, and then after a few days' rest started laying again. That took place some fourteen or fifteen years ago, and we have long since lost the strain; but we were speaking a few days ago to the lady from whom we got these birds, and who still keeps up this family of Silver-Greys. She showed us a pullet of this year hatched on the 7th March, which commenced laying on the 23rd July, and has laid six eggs each week since then. She further informed us that her Dorking pullets invariably commenced to lay under or just at six months old, and that, as a rule, they lay six eggs per week. The hens do not lay quite so well, but still are above the average as layers. This information we know to be absolutely reliable; and even this one instance shows that Dorkings are not necessarily bad layers. The strain is one which has won many prizes, and, although the birds are not very large, they are very good in points.

THE actual laying qualities, not only of the Dorking but of our other breeds, are of much interest, especially when we have before us such figures as those which appear in the Board of Trade returns recently issued. These returns relate to the seven months ending July 31st, and they show that in the first seven months of the year 1881 there were imported into this country no less than

4,009,844 great hundreds of eggs (120 to the great hundred), of the value of £1,471,006. These figures show a considerable increase over the imports during the corresponding period of last year, but are not so large as those for 1879. The value of the dead poultry and game imported is given as 165,707 in 1881, as against 137,997 in 1880 and 173,840 in 1879. We find, then, that we are paying no less a sum than £7000 per diem to foreign countries for our eggs and nearly £800 per diem for dead poultry and game. Such figures as these demand attention, and ought to lead us to consider whether some portion of this money might not with profit be retained in the country. Apart from regular poultry farming, cannot our farmers and cottagers see their way to increase the number of birds they keep, and give more attention to their poultry than they have hitherto done? We have no doubt that it would pay them even though they only obtained the price set down as the value of the foreign eggs—namely, about 7s. 3d. per great hundred. In many places more might easily be obtained for some of the produce as “fresh eggs,” and the profit would then be considerable. We shall return to this subject before long, and meantime shall be glad to have information from our readers as to the average cost per head per annum of their fowls’ food, the number of eggs per annum they obtain from each hen, and particulars as to the sort of fowls they keep.

THE DORKING CONTROVERSY.

THE kind and courteous tone towards myself of Mr. Harrison Weir’s letter in your last week’s issue requires me again to trouble you with a few lines. I am extremely glad to learn from it, as I have learnt from a private communication from Mr. Weir, that he does not consider us fanciers all in the same boat, but excepts some of us from the list of those who have done harm to the Dorking fowl. There is really, then, little difference between us as to the present state of the breed. I will, if I may, briefly recapitulate what at different times I have given (for what it is worth) as my opinion on the subject.

1, The Dorking was formerly a more uniformly square-shaped, short-legged, round, deep-breasted, and white-footed bird than it now is. How far that race was a purely bred one I cannot pretend to say, for my memory only reaches back to the time when it was being partially superseded by birds of a different type; but anyhow, its purity must have been rather a long descent of uniformity in shape than in feather, for its admirers all confess to great diversity in the plumage of good specimens of both sexes. This breed I always understood to be, at least in chickenhood, a very delicate one. My small early experience confirmed this opinion, which all the writers of the older poultry books seem to have held. Mr. Weir believes it to have been a hardy race.

2, When exhibitions became frequent breeders found that judges of poultry gave great weight to size and weight in Dorkings; indeed, at the Birmingham Show they used to weigh them, and in spite of the well-known rule about “purity of breed, &c.,” being rather taken into account “than mere weight,” seemed to ignore many of the old points. Every tyro in breeding knows that a first cross gives increased size and weight; naturally, therefore, breeders—some through utter ignorance of the effects of crossing and of the years it may take to eradicate a taint; others from mere selfishness, caring alone for their own present success—began to try crosses. Their birds so produced won prizes, were bought as prize birds, and spread far over the country; hence long legs, dark feet, want of breast, and many defects which have long been the trouble of the real Dorking fancier. Here I quite agree with Mr. Weir, and I wrote similar words in your columns years ago before the present controversy arose.

3, It must not, however, be forgotten that all the time these spurious birds were being foisted into Dorking yards some fanciers saw and deplored the evil, wrote and spoke against it, exhibited better birds, and were beaten by worse. Some even changed their strains to suit the times; others, like myself, preferred to be defeated for awhile, and to wait for better days. Time has shown that we were wise. That at which I took umbrage was an apparent confusion under the term “fancier,” of us the latter class, whom Mr. Weir is now good enough to term “true fanciers,” with the former class of breeders and exhibitors for mere gain, or rather, I should say, an ignoring of the fact that there has been and is such a class of true fanciers.

This is, I believe, a rough outline of the modern history of the Dorking; the controversy concerning it is explained by its history.

There are other minor points worthy of amicable discussion which arise from it. They are not to be decided in an off-hand manner, but an opinion can only be formed from the experience of the majority.

1, Confessedly nearly all our yards have some trace of the modern crosses in them, however much we may try to keep to the old form, and though we may have quite succeeded in re-establishing it. Has this very small drop of some foreign blood given no increased hardihood in the Dorking and absence of bumble foot? I certainly believe it has.

2, A grand and hardy fowl being in our yards, how far ought we, as judges, to vigorously insist upon such “fancy” points as white legs and feet? or rather, how far is such a point a “faucy” point. I believe that it is not a “fancy” point, but is always found to go with the shape desired, and with superior flesh, and other useful qualities. It is not, however, for those who write with little responsibility to dictate to those in a position of great responsibility, as are judges at shows, exactly what value they should give to such points.

On the latter two I should sincerely like to hear the opinions of some true Dorking fanciers who are also judges.—O. E. CRESSWELL.

OUR LETTER BOX.

Vulture Hook (F. J.).—The long feathers on the thigh you ask about are very common amongst feather-legged fowls. They are known as vulture hooks.

Marking Chickens (Inquirer).—When quite young chickens may be distinguished by marking their fluff with Judson’s dyes of various colours. Afterwards woollen threads may be tied round their legs. They can also be marked by snicking the beak over the nostril with a scissors on one or both sides, or by passing a red-hot wire through the web of the wing. Some breeders punch small holes in the web between the toes. We prefer the first and second methods, as being painless.

Ptarmigan Fowls (A Youngster).—These at first were also called “Grouse-legged Polands.” They are rather larger than Bantams, pure dead white, with white topknots, or rather crests, for these resemble somewhat that of a Cockatoo’s in disorder; legs well feathered and vulture-hooked; combs cupped; cock’s tail well sickled. They are very light and agile in their movements, and are pretty; but we know of no other merits.

House for Ducks (J. E.).—Any easily built wooden house with a tiled or felted roof will do for your Ducks. If you have a spare corner where two walls join, a lean-to house may easily be put up at small cost; if not, a low-roofed moveable house with the roof made of light materials and hung on hinges, so that the interior may be easily accessible and thoroughly cleansed, or with one side made as a double door for the same purpose, will be cheapest. A house 6 feet long, 4 feet wide, and 4 feet high in front, running off to 2 feet high at the back, will be a convenient size, and hold from eight to ten Ducks. The floor should be raised above the level of the surrounding ground, so that it may keep dry. We use sand or dry earth to cover the floor, and bed the Ducks on straw or hay, which is shaken up daily and changed about once a week.

Spanish Cock Ailing, &c. (K. C.).—We can hardly tell from your description whether it is obstruction of sight or vertigo that your Spanish cock is affected with. If the eyes are closed up by the pressure of the white under the eye, the part pressing upon the eyelid may be cut off with a sharp pair of scissors. If, on the other hand, the sight is obstructed by the white over the eye, this can only be dealt with by putting a piece of thread through a small portion of it on each side, and fastening the two pieces of thread together behind the comb just tightly enough to keep the white from pressing on the eye. If the cock’s sight is sufficiently clear for him to see to eat it is probably vertigo which causes the symptoms you describe. In that case you must give a dose of castor oil or salts, and feed sparingly on non-stimulating food. The corns or lumps on the hens’ breasts are probably caused by the roost being narrow and sharp. Bathe them daily with vinegar, and remove the hard matter from time to time. Keep the hens lying upon clean straw until the corns are better. The roost should be 3 inches wide, and have the corners carefully rounded off.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1881.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
August.										
Snn. 14	29.800	56.0	53.2	N.W.	58.7	65.0	51.8	112.2	47.8	—
Mon. 15	29.882	58.8	53.3	N.W.	58.6	68.6	59.4	122.6	45.8	0.022
Tues. 16	29.623	62.2	58.8	W.	58.9	71.5	55.7	119.5	54.0	0.082
Wed. 17	29.448	59.7	55.0	N.W.	60.0	68.3	53.3	126.0	52.9	0.246
Thurs. 18	29.571	60.2	55.3	N.W.	59.7	67.7	52.4	111.3	49.4	0.160
Friday 19	29.577	56.8	55.2	S.E.	59.7	67.8	53.3	109.7	48.7	—
Satur. 20	29.597	58.0	52.0	S.W.	58.5	68.1	46.7	119.8	41.5	—
Means.	29.685	58.8	54.7		59.2	68.1	51.9	117.3	48.6	0.510

REMARKS.

14th.—Fine, cool, overcast at intervals.

15th.—Bright in early morning; occasionally dull, slight rain 4 P.M.; dull evening.

16th.—Fair until 4 P.M., afterwards slight showers.

17th.—Fine in morning; heavy shower 2.5 P.M., and rest of the day.

18th.—Very fine bright day.

19th.—Wet close morning; fine, bright, and breezy after 2 P.M.

20th.—Overcast at times, but generally fine and bright; solar halo 5.40 P.M.

Showery and damp atmosphere, damper than the previous week, although that had three times as much rain as the week just passed.—G. J. SYMONS.



1st	TH	Dundee Horticultural Show.
2nd	F	Paisley Horticultural Show.
3rd	S	
4th	SUN	12TH SUNDAY AFTER TRINITY.
5th	M	
6th	TU	Royal Caledonian Society's Show.
7th	W	Oxfordshire and Glasgow Shows.

THE MANCHESTER INTERNATIONAL SHOW.

LAST week we directed attention to the great horticultural event that has since been held at Manchester, and advised as many as possible of our readers to embrace the opportunity of inspecting what was predicted would be one of the greatest exhibitions of fruit that has been held in any country. Our prediction was fulfilled, and our advice was accepted, as letters before us testify. One very experienced cultivator writes as follows—

"I hardly know whether to thank you or not for inducing me to visit Manchester. With the Show itself I was delighted beyond measure, but I was depressed exceedingly by the cruelty of the weather. That such great efforts and such splendid results should have been made and produced under such unfortunate circumstances is a source of general regret, and sympathy cannot be withheld from the Council of the Society and Mr. Bruce Findlay. The Show was indeed grand, but the weather on the whole was miserable."

Another correspondent writes—

"I received the Journal on Thursday afternoon and went to Manchester on the Friday. I was glad I did not go sooner, or I should have been swamped in the deluge. I was, however, soon enough to have the 'conceit taken out of me' in some respects; but on reflection I do not think that I ought to be expected, or that any gardener ought to be expected, to produce everything as good as was seen there. I shall be glad, Mr. Editor, to have your opinion on this point, as I think there is at least a chance that some gardeners may be the victims of what I may term too great expectations on the part of employers, who may expect what it is impossible can be produced by the resources of their establishments, however competent their gardeners may be, and however earnestly they may labour to make the most and the best of the means at their disposal."

This is a new aspect in which horticultural shows may be regarded, and we confess it would not have occurred to us. But we have no difficulty nor hesitation in giving an opinion on the point that has been submitted. Not only is it utterly impossible for any man to produce everything as good as was staged at Manchester last week, but it is to us equally impossible to suppose that anyone would be expected to do so. It were as reasonable to expect that any one artist could equal the best portraits and landscapes that are exhibited at the Royal Academy, as to suppose that any gardener could do what has been suggested. No one gardener can possibly be expected to compete at a given day with all other gardeners and their specialities, and the very supposition of such an unequal contest is utterly unreasonable, not to say absurd. The best products that are staged at the leading exhibitions show what can be accomplished by competent men under favourable circumstances, and it becomes the duty of all cultivators who

inspect those products to turn the resources at their own command to the best possible account with the view of approaching as nearly as is possible, and if possible to excel, the examples that have commanded the approval of the Judges by their conspicuous merit. If a gardener who is skilled in his calling "earnestly labours to make the best and most of the means at his disposal," he does his duty, and no more can reasonably be expected from him.

Another letter before us treats of exhibitions generally in a still different aspect, and one on which a great number of horticulturists often express similar opinions privately, if not publicly. The writer of the letter in question, who is a gardener of great experience and an exhibitor of some note, says—

"I seldom go to a show but I find it marred by some bold plan of advertising that is alike obtrusive and disagreeable to a great number of visitors. At a great show that I could name cards as large as a moderate-sized window sash were placed on several collections of plants, informing the public that the said plants had been 'grown by so-and-so's boiler!' The absurdity of the statement, added to the unsightliness of the unwieldy cards, imparted to those parts of the Exhibition a shoppishness that was quite out of place. It appears to me, and I know to many others, that if private business cards are permissible in the classes for competition they should be in some degree proportionate to the character of the exhibits. Judging by the efforts made by certain exhibitors to direct attention to their wares, it would appear as if they were under the impression that the visitors were blind. It is still worse when incongruous 'trophies' are erected, as was the case in one conspicuous instance at Manchester. Such 'trade enterprise' cannot be admired. It may be said the managers of shows should prevent obtrusive trade exhibits. This is easier said than done. A manager of an exhibition necessarily hesitates to incur the disfavour of those whom he looks to for support; on the contrary, in his desire to oblige he will at times strain a point and grant a favour if he is conscious that he will not prejudice others. The result is too often an exemplification of the existence of the spirit of the old proverb 'Give an inch take an ell.' The fact is, the council and directorate of shows as a body should decide on matters of this kind, and not place on an individual the responsibility of rendering himself liable to the charge of being disagreeable by the refusal of favours that he ought not to be requested to grant."

We publish the above letter, trenchant though it may be, because it has reference to a practice that the public certainly do not approve of. At the same time the principal contributors to the leading shows incur considerable cost in the conveyance of their exhibits and the deterioration to which they are subjected, and it is only natural that they should endeavour to turn the opportunity to account with the object of recouping themselves for the outlay and extending their trade. The question then arises whether this cannot be done as effectually in a more quiet and appropriate manner, as by such methods as have been referred to by our correspondent.

With regard to the extent of this magnificent Exhibition, the statement of a few simple facts will convey the best idea to those who were unable to inspect it. In the 250 or 260 classes, which included those of the National Rose and Carnation Societies, there were over 3500 entries, and the produce staged necessarily required considerable space. The glass exhibition building and the permanent iron marquee usually suffice for the exhibits at the Whitsuntide Show that are extensive in no ordinary degree, but on this occasion a great addition was required. A marquee 327 feet long was occupied with fruit and vegetables, the central table being devoted to the former, and presenting such a display as few have seen before. From this long marquee three annexe tents, each

nearly 100 feet long, were taken at right angles, being occupied chiefly with cut flowers, Roses, Carnations, Picotees, and miscellaneous exhibits; while at the extremity of one of these was another of similar dimensions devoted to the cottagers' productions and Bee Show.

The terrace and lawns were adorned with the numerous handsome collections of Conifers, and, to accommodate the Potatoes and some other vegetables that were strongly represented, wooden stages were erected of a total length of several hundred feet, and yet there was scarcely sufficient room.

It may be well to remind our readers that the chief object of this Jubilee Exhibition was to raise sufficient funds to rebuild the range of glass houses, which are now becoming so old and dilapidated that considerable difficulty is experienced in preserving the plants in healthy condition. Strenuous efforts have been made to forward this design, a large proportion of the prize money has been raised by subscription, so that the visitors' fees might be entirely appropriated to this special object. Unfortunately the adverse weather has to a great extent defeated the intentions of the projectors, for though we are informed that £500 were taken on Saturday, and the Show remained open on Monday, the amount must fall far short of that needed to execute the work in a satisfactory manner. Perhaps, however, the necessary funds will be forthcoming from other sources; and it is desirable that this may be so, for a handsome range of glass would be one of the best monuments of the Society's long successful career. The following is a full report of this memorable Exhibition:—

FRUIT.

The show of fruit on the whole was magnificent and of high-class quality. There can be no doubt that as far as this portion of the Exhibition was concerned it was a splendid success, and it may be a long time before finer examples of some kinds of fruit are again placed on the exhibition table. The first-prize collection of twelve dishes shown by Mr. Coleman was indeed worthy of the high reward it obtained. The collection had few if any weak points. The Grapes staged by Mr. Elphinstone throughout his exhibits indicated high-class culture, especially those shown in the class for six kinds of Grapes. This stand was the admiration of all, and will not be soon forgotten by those who saw it. The bunches staged of Muscat Hamburgh for the Veitch Memorial prize were grand indeed, and also the bunches of Madresfield Court staged in the same class by Mr. Roberts, Gunnersbury; and in the class for white Grapes, those staged by Mr. Hudson and highly commended were of marked excellence. Peaches were remarkably fine, especially Bellegarde and Princess of Wales. Amongst Nectarines of superior quality Lord Napier, Elruge, Pitmaston Orange, and Pine Apple ranked amongst the finest. The Pines throughout were most creditable, especially the Smooth Cayennes. The competition with hardy fruits was keen, and large quantities were staged of superior quality. The various exhibits in this department shown from Maidstone by Mr. C. Haycock were remarkable for their superiority and brightness.

COLLECTIONS.

In the class for "fifteen kinds of fruits, not more than four kinds of Grapes, two kinds of Pine Apples, and two kinds of Melons," four collections were staged. Mr. W. Coleman, gardener to Earl Somers, Eastnor Castle; Mr. McIndoe, gardener to F. W. Pease, Esq., M.P., Hutton Hall, Guisborough; and Mr. J. Roberts, gardener to Baroness L. de Rothschild, Gunnersbury Park, were awarded the prizes in the order named. Fruit of high-class culture were staged. Mr. Coleman's collection being as near perfect as possible. The stand contained Muscat of Alexandria Grapes of a rich golden colour, fine in berry and bunch; Black Hamburgs, equally fine; Gros Maroc, a fair-sized bunch with very large berries, and could not have been finished better; Madresfield Court in fair condition; two Pines, a Queen and a Smooth Cayenne, both good specimens; Blenheim Orange and Eastnor Castle Melons, both fine fruit; capital dishes of Chancellor and Bellegarde Peaches, the fruit very large and well coloured; Elruge and Lord Napier Nectarines, both wonderfully good, especially the latter, which were very large; good Brown Turkey Figs; splendid Moorpark Apricots; and a fine dish of the Pitmaston Duchess Pear, the fruit being of large size and fine in colour. Mr. McIndoe staged good Muscat of Alexandria Grapes, scarcely so fine in the berries as those shown by Mr. Coleman; Gros Guillaume, a large bunch, fine in every respect; Black Hamburg, large bunches, well finished, but rather small in the berries. Trebbiano was well shown. The Melon, McIndoe's Premier, was a fine fruit, as was Suttons' Best of All. Of Peaches, Stirling Castle and Princess of Wales were pale but large; the fruit of Pine Smooth Cayenne was good, but the one of Queen was small in size; a dish of Humboldt Nectarine was very fine, as also was the dish of Beurré Superfin Pear. Good Brown Turkey Figs and two dishes of Plums completed the collection. The Grapes in the third-prize collection were the weakest part. The Pines were very fine, and a fine fruit of William Tillery Melon was

splendidly netted. Barrington Peaches were of good size and rich colour for that variety; the dishes also of Violette Hâtive Peach, Downton Nectarine, Brown Turkey Figs, and Williams' Bon Chrétien Pears were highly creditable to the cultivator.

In the class for twelve kinds of fruit four collections were again staged. Mr. J. Austen, gardener to Sir Greville Smythe, Bart., Ashton Court, Bristol, took the lead with fine Grapes of Muscat of Alexandria, good alike in bunch, berry, and colour, and equally good Black Hamburg. The two Pines, Smooth Cayenne and Queen, were both splendid fruit. Noblesse Peaches were large and well coloured. Elruge Nectarines, Moorpark Apricots, Negro Largo Fig, Jargonelle Pears, Morello Cherries, and Apple McLean's Seedling, all indicated high-class culture. Mr. G. T. Miles, gardener to Lord Carrington, Wycombe Abbey, Bucks, was a close second, having good Grapes of Gros Maroc, not large in the bunch, but with very fine and highly finished berries, also fine Muscats, but scarcely finished; two good Pines; Dr. Hogg's black Fig, small, and of a deep purple colour; and the dishes of Bellegarde Peaches and Lord Napier Nectarines were all that could be desired. Mr. A. Bander, gardener to Sir Henry Allsopp, Bart., Hindlip Hall, Worcester, took the third prize, having good Muscat of Alexandria and Madresfield Grapes, Blenheim Orange and Colston Bassett Melons, with a very fine dish of Brown Turkey Figs and Rivers' Orange Nectarine.

For the prizes offered for nine kinds of fruits four collections were once more staged. Mr. J. Edmunds, gardener to His Grace the Duke of St. Albans, Bestwood Lodge, Notts; Mr. J. H. Clayton, gardener to F. Fielden, Esq., Grimston Park, Tadcaster, and Mr. W. Wallis, gardener to Sir H. W. Thompson, Bart., Kirby Hall, Yorkshire, were the successful competitors. In the first-prize collection the Black Hamburg Grapes were very good; the bunches of Muscat of Alexandria being rather short of colour. The Smooth Cayenne Pine was good, and equally so the Melon Best of All. The Peaches included a good dish of Gladstone, a fine light-coloured fruit of good size, and Noblesse also good. Splendid Moorpark Apricots and well-finished Pitmaston Nectarines, but rather small, completed the collection. Mr. Clayton staged fine Muscat of Alexandria, but, like the first-prize lot, a little wanting in finish; the Black Hamburg Grapes and Bellegarde Peaches were excellent. The remaining good dishes being Balgowan Nectarines, Brown Turkey Figs, and Hybrid Cashmere Melon. The Pine was rather small. Mr. Wallis's best dishes were Buckland Sweetwater Grapes, not large in bunch but fine in the berry and splendidly finished; good Grosse Mignonne Peaches, and the finest fruit of Brown Turkey Figs that was staged in any of the collections. The seedling Melon in this collection was rather a coarse fruit.

In the class for six kinds of fruits there were six competitors. Mr. D. Wilson, gardener to Earl Fortescue, Castle Hill, Devon, received the premier position, followed closely by Mr. J. Austen and Mr. J. Blair, gardener to Sir G. W. B. Middleton, Bart., Shrubland Park, Suffolk. The former staged some remarkably fine fruit of Black Alicante Grapes, a large well-ripened Smooth Cayenne Pine, Dymond Peach, very large for this variety; Good Pitmaston Nectarines, and Figs. The fruit of William Tillery Melon was not well netted. The second-prize collection contained some superior bunches of Muscat of Alexandria, and well-finished Black Hamburgs and a good Pine. In the third collection Golden Queen Grapes were very fine in every respect, and the dish of Barrington Peaches was all that could be desired.

GRAPES.

The prizes offered in these important classes were in every case well contested for. In the class for ten varieties, one bunch of each, some splendid examples of culture were staged, and on the other hand a few were quite of the contrary character. Mr. J. Hunter, gardener to the Earl of Durham, Lambton Castle, Durham, secured the first honours, some of the bunches weighing from 4 to 10 lbs. Gros Colman was remarkable both for size of bunch and berry, but scarcely finished; Muscat of Alexandria was excellent in the size of the berries and colour, and the bunch very symmetrical; Alicante was very fine and well finished; Gros Guillaume, large and well coloured, but rather small berries; Lady Downe's, all that could be desired; Trebbiano, large and very fine; Aramon, large in bunch but small in berry; Calabrian Raisin, a wonderful example, very fine in berry, and a large well-finished bunch. The bunches of Black Hamburg and Foster's Seedling were the weakest in the stand. Mr. McIndoe was second. The bunches throughout were of a smaller size than those in the first-prize collection, yet sufficiently large; they were also well shaped, and many of them even better finished than the Lambton Grapes. The most noticeable bunches were Gros Colman, very good; Duke of Buccleuch, a fair-sized bunch with large berries; Gros Guillaume and Trebbiano, both very good; Black Alicante was large in bunch and berry, but defective in colour; Golden Champion, of fair quality; Black Hamburg, superbly finished but small in the berry; Duchess of Buccleuch being weak, and West's St. Peter's. Mr. J. Hammond, gardener to Sir Wilfrid Lawson, Brayton Hall, Carlisle, obtained the third prize with fine Grapes but scarcely ripe. The bunches of Buckland Sweetwater, Alicante, and Duke of Buccleuch were good in size of bunch and berry; Gros Colman, fair; Lady Downe's, well finished; Muscat of Alexandria, Calabrian Raisin, and Golden Queen large but not ripe. Eight collections were staged.

In the class for six varieties of Grapes, one bunch of each, fifteen

lots were staged in competition for the prizes. Mr. Elphinstone, gardener to E. M. Mundy, Esq., Shipley Hall, Derby, took the lead with magnificent Grapes, the cream of the Exhibition. The bunches were smaller than many others, but the berries were enormous, and their finish remarkable. Madresfield Court, Alicante, Muscat of Alexandria, Gros Colman, and Golden Queen have never been surpassed; the only faulty bunch was the Muscat Hamburg. Mr. J. Austen was second, the Muscat of Alexandria and Black Hamburgs being very fine; Venn's Seedling, in fair condition; Madresfield Court, good; Mrs. Pince and Mrs. Pearson being rather deficient in finish. Mr. J. Hammond was awarded the remaining prize, and staged remarkably good examples of Duke of Buccleuch, Alicante, and Lady Downe's, and a well-coloured bunch of Buckland Sweetwater.

Twenty-two competitors staged fruit in the class for two bunches of Black Hamburg Grapes. Mr. F. Boyd, gardener to W. Forbes, Esq., Callendar Park, Falkirk, N.B., took the lead with good examples of high-class culture and well finished. Mr. Barker, gardener to T. S. Patterson, Esq., Rock Ferry, was second with well-finished bunches a little smaller in the berry; and Mr. Wm. Coleman third, also with highly finished bunches. For two bunches of Muscat of Alexandria twenty lots were staged, including some of the best Muscats that have ever been exhibited. The first-prize bunches of Mr. Austen were remarkable, the bunches and berries being large and the finish superior. Mr. J. Hudson, gardener to H. J. Atkinson, Esq., Gunnersbury House, Acton, was second with equally fine examples, but a trifle behind the first in that finish that is so desirable in Muscats. G. Middleton, Esq., Romford Hall, St. Helens, Lancashire, was third with excellent produce. Many good Grapes to which no prizes were awarded were highly creditable to the competitors, as may be supposed when so many competed for three prizes. In the class for two bunches of Muscat Hamburg Grapes over a dozen lots were staged, Mr. Boyd taking the lead with highly finished examples. Mr. Wallis was a close second with bunches scarcely inferior in any respect, and Mr. G. T. Miles third with equally well finished bunches but rather loose. The competition was not so large in the class for two bunches of Madresfield Court. Mr. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, took the first prize with grand examples; Mr. Roberts was a close second with superbly finished bunches; and Mr. A. Barber was an excellent third. Seven exhibitors staged in the class for two bunches of Alicantes, Mr. W. Elphinstone securing the first position with the two finest bunches of this variety in the Show, they were very large and nearly perfect in colour. Mr. Forbes, gardener to J. Harris, Esq., Derwent Lodge, Cockerham, was second with fine well-finished bunches; and Mr. R. Elphinstone, gardener to J. Heywood, Esq., Stretford, third with equally well finished but smaller bunches. Mr. W. Elphinstone was first in the class for two bunches of Gros Colman, and staged almost faultless examples. Mr. Forbes, Derwent Lodge, was second with well-coloured bunches, but smaller in the berry; and Mr. McIndoe third with good bunches but a little short of colour. Eight lots were staged for the prizes offered for two bunches of Lady Downe's. Mr. W. Bannister, gardener to H. St. Vincent Ames, Esq., Cole House, Westbury-on-Trym, was first, showing superior produce. Mr. W. Elphinstone followed closely with a little smaller bunches but equal in other points; and Mr. Hunter was third, also with capital bunches. In the class for two bunches of Duke of Buccleuch there were four competitors. Mr. McIndoe, Mr. J. Morton, gardener to J. Fieldes, Esq., Chorltoncum-Hardy, and Mr. J. Farquharson, Acton, Wrexham, took the prizes. The first-prize Grapes being very beautiful, the second small bunches but well finished, and the third large but deficient in colour. Mr. McIndoe was first for two bunches of Golden Champion, showing well-finished bunches, examples without spot or blemish. Mr. J. Roberts was second, his bunches having very large berries; and Mr. J. Morton was an excellent third.

In the class for the heaviest bunch of Black Grapes Mr. Roberts, gardener to the Countess Charleville, Tullamore, Ireland, was first with Gros Guillaume weighing 20 lbs. The berries were small, and the bunch anything but well coloured. The same exhibitor also staged two bunches of Trebbiano, weighing 28 lbs. the two. Mr. W. Burnyeat, Hynon, was awarded the second prize for a large bunch of Gros Guillaume, no weight being given. Mr. Dickson, gardener to J. Jardine, Esq., Arkleton, was third. For the heaviest bunch of white Grapes the same exhibitor was again first, showing Trebbiano, weighing 20 lbs. 3 ozs. Mr. Dickson was second with a bunch 11 lbs. 9 ozs. in weight. No name was attached to the third-prize bunch.

New Grapes.—One prize was offered for the best seedling Grape, and six competitors appeared, the prize being secured by Mr. Ollerhead, gardener to Sir H. W. Peek, Bart., M.P., Wimbledon, for Ollerhead's Seedling, a white Grape, said to be a cross between Muscat of Alexandria and Foster's Seedling, and has been previously described. Mr. Hunter had a black Grape raised last year, the berries were round but with rather thick skin. Mr. Allan of Gunton and Mr. Horsefield of Heytesbury showed the Chatsworth, also a black Grape of fairly good flavour.

PINES.

In the class for six Pine Apples, not less than three varieties, Mr. McIndoe was first and the only exhibitor, showing well two Queens, two Charlotte Rothschilds, and two fine Smooth Cayennes. For two Pines of any kind Mr. D. Wilson was first with a pair of Queens, very fine fruit; Mr. D. Murray, gardener to the Marquis of Ailsa, second with the same variety; and Mr. Faulkner, gardener

to F. R. Leyland, Esq., Woolton Hall, Liverpool, a close third. Mr. D. Wilson was also awarded the first prize for one Smooth Cayenne weighing 6 lbs. Mr. J. Ricks, gardener to Sir G. Chetwode, Bart., Oakley Park, Market Drayton, and Mr. Hutton, gardener to W. Bellhouse, Esq., Southport, being second and third respectively with very good fruits. For one Queen Mr. S. Whitfield, gardener to F. F. Cross, Esq., Aigburth, was first, Mr. Faulkner second, and Mr. J. Austen third, all exhibiting well, six lots being staged. In the class for one Pine Apple, any other kind, Mr. J. Muir, gardener to C. R. M. Talbot, Esq., Ma'gam Park, was first, followed closely by Mr. Ricks.

PEACHES AND NECTARINES.

Peaches were well and numerous shown, Mr. Hunter taking the lead in the class for three dishes of six fruits, followed closely by Mr. Milne, gardener to Lord Delamere, and Mr. W. Coleman. The first-prize dishes contained fine fruit of Hale's Early, Royal George large and well coloured, and Early Grosse Mignonne very good. In the second (Mr. Coleman's) Red Magdalen was in good condition, the other varieties being the same as in the first-prize collection. Belle-garde and Alexandra Noblesse were large and very fine in the third-prize lot. The Judges had some difficulty in deciding in this class, as the majority of the twenty-two dishes that were staged were all of first-rate quality. Some thirty dishes were staged in the class for twelve fruits, and Mr. Coleman was awarded the premier prize with Belle-garde, which he staged in splendid condition throughout the Exhibition. Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, was second with Princess of Wales, very large and in fine colour for that variety; Mr. J. Hunter being third with Royal George, highly coloured and very large. In the class for one dish of six fruits there was about the same number of competitors as in the preceding class. Mr. Bland, gardener to Mrs. G. Smith, Cranbourne Court, Windsor, was awarded the first prize for extra large fruit of Princess of Wales. Mr. D. Abbott, gardener to C. H. Firth, Esq., Sheffield, was second with Violette Hâtive, very fine; and Mr. McKelvie, gardener to the Dowager Duchess of Roxburgh, Broxmouth Park, third with excellent fruit of Royal George.

Nectarines.—The competitors in these classes were as numerous as in the classes devoted to Peaches. For twelve fruits Mr. W. Coleman took the lead with large and very fine examples of Lord Napier. Mr. J. Malcolm, gardener to the Marquis of Cholmondeley, was second with large fruits of Pine Apple, but rather deficient in colour. Mr. J. Hunter third with Violette Hâtive, large and well coloured; between thirty and forty lots being staged. In the class for six fruits Mr. R. Gilbert, gardener to the Marquis of Exeter, Burghley, Stamford, was first with nearly green but large fruits of Victoria. Mr. G. Masters, gardener to Col. Leigh, High Leigh Hall, followed with Prince of Wales, a variety much resembling Victoria, and nearly green. The third fell to Pitmaston Orange, exhibited by Mr. W. G. Gaiger, gardener to S. F. Whitehead, Esq., Bakewell; over twenty lots being staged. For three dishes, Messrs. Hunter, W. Coleman, and R. Milne took the prizes; the two former both showing Elruge well, while the latter staged fine fruits of Violette Hâtive.

Apricots.—These were generally very good, the competition was also good in the several classes. For twelve fruits Mr. R. Gilbert was first, Mr. W. Wallis second, and Mr. J. Ridsdale, gardener to the Marquis of Ripon, third. For one dish Messrs. G. Malcolm, G. J. Barton, Oxtou, and J. Ricks took the prizes in the order named.

Melons.—Some twenty pairs were staged in the class for two green-fleshed kinds, Mr. G. T. Miles obtaining the first prize, and Mr. W. Coleman the second, staging respectively Dickson's Exquisite and Eastnor Castle. Messrs. J. Cheal & Sons, Crawley, Sussex, were third, showing their new Melon Shepherd's Perfection, a large well-netted and fine fruit of the Cox's Golden Gem type. For two scarlet-fleshed kinds Mr. W. Pratt, gardener to Viscount Hill, Hawkstone, Salop, was first with Hawkstone Seedling, a useful-sized, well-netted, and good-flavoured variety. Mr. W. Coleman followed with Blenheim Orange, a well-netted fruit, and Mr. J. Blair secured the remaining prize with a fine example of Royal Ascot. In the class for one Melon, green-fleshed, Mr. H. W. Cordale, gardener to W. Boulton, Esq., Worcester, was first with Hero of Lockinge, Mr. G. T. Miles second with a variety not named, and Mr. W. Coleman third with Eastnor Castle. Seventeen fruits were staged. In the class for any scarlet-fleshed kind Mr. T. Bailey, gardener to T. T. Drake, Esq., Shardloes, Bucks, was first with Victory of Bristol; Mr. Goldsmith, gardener to Sir W. Farquhar, Bart., Dorking, second with Bloxholm Hall; and Mr. G. Malcolm third with a fine netted variety with no name. One class only being devoted to Figs it was surprising what a number of dishes were staged. For twelve fruits Mr. W. Allen, gardener to Lord Suffield, was first with fine fruit of Brown Turkey; Mr. A. Barber was second with the same variety, and Mr. W. Wallis third.

For the best specimen of Suttons' Hero of Lockinge Melon Mr. J. Malcolm was first with a handsome fruit, followed by Mr. Upjohn, Worsley, and Mr. R. Gilbert.

The special prizes offered by Messrs. Dickson, Brown, & Tait for their Best of All Melon were won by Mr. G. Wilkes, gardener to Mrs. Tambaci, followed by Mr. J. Roberts, Acton, and Mr. D. Abbott.

LEMONS, ORANGES, &c.

In the class for the finest collection of Lemons, Citrons, Oranges, Limes, and Shaddocks (open to all countries) there was only one

exhibitor—Mr. J. Mnir, who had a collection which was greatly admired and was deservedly awarded the gold medal. It is questionable if such a fine assortment could have been staged from any other private establishment in the kingdom. The fruits were well arranged on dishes edged with sprays and flowers of the shrubs, which added materially to their embellishment. The following were some of the most prominent varieties of this remarkable collection:—Citrus Aurantium sinense, C. Limonum racemosum, C. vulgaris, C. Decumana, C. A. fructu-depresso, C. Limonum Bignetta, C. A. melitense, C. A. rugosum, C. A. microcarpum, C. A. ilicifolium, C. Limonum oblongum, C. A. nicænsis, C. A. lusitanicum.

HARDY FRUIT.

This made a fine display. In the class for a collection of twelve kinds in a basket or tray some eight collections were staged. Mr. C. Haycock, gardener to R. Leigh, Esq., M.P., Barham Court, Maidstone, and Mr. William Faye, gardener to J. Dereham, Esq., Sneyd Park, Bristol, took the prizes as named. The first-prize collection contained a very fine assortment including a good dish of Williams' Bon Chrétien Pear, large and of good colour; a dish of Cob Nuts, Red and White Currants, Morello Cherries, Devonshire Quarrenden Apples, large and fine; Golden Gage Plums, Warrington Gooseberries, a good dish of Dr. Hogg Peaches, and Rivers' Orange Nectarine. The second collection contained good dishes of Prince of Wales Peach, Worcestershire Pearmain Apple, Green Gage and Jefferson Plums, Mother Apple, and a good dish of Baronne de Mello Pear. The third lot contained good Red Astrachan Apples, Elruge and Pine Apple Nectarines, Washington Plums, and a good dish of Filbert Nuts.

PLUMS.—These were of first-rate quality, and the competition was keen. In the class for twenty fruits, five kinds, Mr. W. Gibbon, Sedford Grange, Pershore, Mr. J. Hunter, and Messrs. Smith & Sons, Cheltenham, were the prizetakers. Good fruit was staged in the first-prize lot of Diamond and Victoria, very fine, Cox's Emperor, Jefferson, and Belle de Louvain. For twelve fruits of any kind Mr. Upjohn, gardener to the Earl of Ellesmere, Worsley, took the lead with Green Gage; Mr. Grant, gardener to Mrs. B. Glegg, second with Jefferson; and Mr. J. Gibbon third with Victoria.

PEARS.—Mr. Haycock took the premier award in the class for a collection of twelve varieties of Pears, two fruits of each, ripe or unripe, the best fruits being Van Mons Léon Leclerc, Duchesse d'Angoulême, Souvenir du Congrès, Beurré d'Amanlis, Doyenné Boussoch, and Maréchal de Cour. Mr. W. Wildsmith, Heckfield, was second, showing good fruits of Pitmaston Duchess, Brockworth Park, Beurré Clairgean, and Beurré Sterckmans. Mr. J. Austen was a good third, having excellent dishes of Beurré Hardy, Urbaniste, and Beurré de l'Assomption. For twelve Jargonelles Messrs. Smith & Sons, Cheltenham, were first with good fruit; Mr. John House, Peterborough, second; and Mr. Haycock third. For six fruits, two kinds of each, Mr. McIndoe was first with Souvenir du Congrès and Beurré de l'Assomption; Messrs. Smith & Sons second, having good fruit of Williams' Bon Chrétien; and Mr. Douglas, gardener to F. Whitbourne, Esq., Loxford Hall, third, having Beurré Giffard, fine. In the class for the six heaviest fruits Mr. McIndoe took the lead with Pitmaston Duchess; Mr. W. Crump, Blenheim, second, and Mr. Hannagau, Hooton Hall, third, both staging the same variety.

APPLES.—Some fine fruits were exhibited in the class for twelve baking kinds, two fruits of each. Mr. Haycock was first, and Mr. C. Ross second. The first comprised good examples of Lord Derby, Bedfordshire Foundling, Warner's King, Loddington Seedling, Mère de Ménage, Emperor Alexander, Lord Suffield, Ecklinville Seedling, and Belle Dubois; the second good Golden Noble, Grand Duke Constantine, Peasgood's Nonesuch, and Dutch Codlin. Mr. G. T. Miles was third, having good White Transparent, Grenadier, and Beauty of Kent. For six baking kinds L. A. Killick Esq., Mount Pleasant, Maidstone, was first with Loddington Seedling; Mr. Haycock followed with Lord Suffield, and Mr. John Barnes, Hucclecote, with the same variety. Mr. Haycock was the successful exhibitor in the class for a collection of twelve kinds of dessert Apples, two fruits of each, and staged Devonshire Quarrenden, Cox's Orange Pippin, Emperor Napoleon very fine, Irish Peach, Duchess of Oldenburg, Red Astrachan, White Transparent, Lady Derby, and Ribston Pippin. Mr. J. Roberts was a close second with good Duke of Edinburgh, Worcestershire Pearmain, Golden Pippin, and Cox's Orange Pippin. Nearly thirty dishes were staged of six dessert kinds suitable for table; Mr. J. O. Cooper, Calcot, Berks, was first with very fine Red Astrachan; Mr. D. Roberts second with Duchess of Oldenburg, and Mr. W. Faye third with the same variety.

Red Currants were rather numerously staged, the prizetakers being Messrs. W. Wallis, J. Austen, and J. Edmunds. For White Currants Messrs. W. Pratt, McIndoe, and Edmunds were the prizetakers.

Fruit Trees in Pots.—This division of the schedule was only poorly represented. The pot Vines were anything but good, and the fruit badly rubbed in travelling. For two Vines Mr. G. Park, gardener to R. A. Farrington, Esq., Wigan, was first with by far the best. Mr. McGaw was second; and Mr. G. Smith, gardener to J. Rylands, Esq., Stretford, took the remaining prize. The Figs in pots were poor, and need no further comment.

PRIZES FOR HORTICULTURAL SOCIETIES AND FRUITERERS.

Gold medals were provided for fruit and vegetables exhibited by

horticultural societies in any part of the world, the produce being grown in their respective districts. For the collection of fruit the Bristol Chrysanthemum Spring Show Society staged the only collection, and was awarded the gold medal and prize. The fruit staged was good, and comprised a large and varied collection, and well deserved the award given. Some of the principal dishes were Grapes. Gros Colman good, Mrs. Pince fair, Madresfield Court fine, Lady Downe's rather defective in finish, Buckland Sweetwater well finished. Other Grapes were staged, but those enumerated were the best. Good Queen and Smooth Cayenne Pines were staged. Apples—Lord Suffield very large, Alfriston fine, and Early Harvest. Pears—Beurré d'Amanlis good-sized fruit, Jargonelle, and others. Nectarines—Rivers' White, Pitmaston Orange, and Violette Hâtive, with good Gros Mignonne Peaches. The collection also included American and Siberian Crabs, good Apricots, Plums in variety, and Gooseberries.

Prizes for Fruiterers.—In the class for the largest and most meritorious collection of fruits, including all kinds, Mr. Mason, Victoria Buildings, Manchester, was awarded the premier award for a large and very fine display of fruit, including baskets of Duke of Buccleuch Grapes of superior quality, and remarkably fine Muscat of Alexandria, black Grapes of every description, Pines, Melons, Plums, Pears, Apples, Passion fruit, Tomatoes, and many other kinds, all of great excellence. Great credit is due to Mr. Mason for such an elaborate collection of fine fruits; it was a great feature in the Exhibition. Mr. Bradshaw, fruiterer, Bolton, also staged in this class, and was awarded the second prize. This was a good assortment, but much inferior to the preceding collection. For a collection of ten kinds Mr. F. Stevenson, Altrincham, was the only exhibitor, and was awarded the first prize. His collection comprised some good Black Hamburgh, Muscat of Alexandria Grapes, and Royal George Peaches. In the class for the finest collection of hardy fruits, ripe or unripe, the same exhibitor was again first, staging good Williams' Bon Chrétien and Beurré d'Amanlis Pears, Apricots, Magnum Bonum Plums, and Citron des Carmes Pears. Mr. John Barnes, Hucclecote, was a good second.

SPECIAL PRIZES.

THE GENERAL HORTICULTURAL CO.'S PRIZES (JOHN WILLS, MANAGER).—Some grand fruit was staged for these. In the class for twelve dishes including two Pines, two kinds of Grapes, two Melons, and six other kinds of fruit, the first prize was thirty guineas, and the second twenty guineas. Mr. W. Coleman took the lead, and perhaps never staged fruit in finer condition. The Muscat of Alexandria and Black Hamburgh Grapes were superb in every respect; the Smooth Cayenne and Charlotte Rothschild Pines were models of perfection; the Melons Blenheim Orange and Eastnor Castle were both handsome fruit; the Bellegarde Peaches were large and well coloured, and the Lord Napier Nectarines were of the first quality. Good Pitmaston Duchess Pears, Morello Cherries, Washington Plums, and a fine dish of Brown Turkey Figs completed the collection. Mr. Goodacre, Elvaston, was placed second, and staged a grand lot of fruit, although several points behind those shown by Mr. Coleman. Canon Hall Muscat was very fine in berry, bunch, and colour; the Melons were also fine fruit, Luscious-and-Melting, and Sydnopé Favourite; the Pines were both good, and only differed from the others in a Queen being staged instead of a Charlotte Rothschild. Violette Hâtive Peach, and Pitmaston Nectarine were both fine dishes; Moorpark Apricots were also good; the Jargonelle Pears, Jefferson Plums, and Brown Turkey Figs were creditable dishes.

In the class for the best six bunches of white Grapes and six of black, two or four kinds, for prizes of the same value as above, some grand and finely finished Grapes were staged, and we were sorry to see many fine examples that competed in this class for the two prizes passed over without an extra award. Mr. Hunter, Lambton Castle, was the successful exhibitor, and staged some splendid examples of Trebbiano, three bunches, large and finely finished; Muscat of Alexandria, fine colour, large in bunch and berry; Black Hamburghs, superb, and the Alicantes were monsters and good. Mr. Louden, gardener to T. Barnes, Esq., Chirk, was the other successful exhibitor, and staged white Grapes in the first-prize collection, but a little smaller in size, good Black Hamburghs; and neat well-finished bunches of Madresfield Court.

THE VEITCH MEMORIAL PRIZES.—For three Pines, English-grown fruit, Mr. Wilson, Castle Hill, Malton, was awarded the prize of £5 and the Veitch Memorial medal for very fine fruit. For ten kinds of English-grown fruit Mr. Goodacre was awarded the Memorial medal and £5. He staged good fruit of Muscat of Alexandria and Black Hamburgh Grapes, two good Pines, Royal George and Violette Hâtive Peaches, Plum Transparent Gage, Jargonelle Pears, Moorpark Apricots, and a Conqueror of Europe Melon. For three bunches of black Grapes W. Forbes, Esq., Falkirk, N.B., was awarded the prize and Memorial medal for perfect examples of Muscat Hamburgh. Some good Grapes were staged for this prize, and without doubt the finest bunches of Madresfield Court in the Show were staged in this class by Mr. J. Roberts. In the class for three bunches of white Grapes Mr. Raffil, gardener to Lord Tredegar, obtained the medal and prize for well-coloured large bunches of Muscat of Alexandria. Mr. Hudson also staged bunches of the same variety, and was only one or two points inferior to those that obtained the medal, Mr. Hudson being highly commended for his collection.

The prize presented by Messrs. Paul & Sons, Old Nurseries, Ches-

hunt, for the best dish of Strawberries was won by Mr. J. M. Smith, gardener to the Earl of Crawford, with large unnamed fruit.

PLANTS.

As regards the comparative importance of the several sections in the Exhibition pre-eminence must undoubtedly be accorded to the fruit and vegetable classes, the plants occupying a second-rate position both in numbers and excellence. This was principally due to the fact that it had intentionally and judiciously been the object of the projectors to give special encouragement to the exhibitors of fruit, as the season selected was one at which that important portion of garden produce could be most largely and best represented. Plants,

especially those grown chiefly for the beauty of their flowers, are shown in their prime at earlier periods of the year, and the end of August is somewhat late to expect an imposing display. Many of the handsome specimen stove and greenhouse plants which grace the exhibitions of May, June, and July have now lost their principal charms, and consequently anything like a great floral display could not reasonably be expected. Notwithstanding this, however, flowering plants were sufficiently numerous to impart that much-needed richness and variety of colour without which a horticultural exhibition is comparatively tame and uninteresting to the general visitor. Fine-foliage plants, and particularly Crotons, were in strong force and grand condition, the fine yellow and crimson tints that distinguish the last-



Fig. 33.—MR. BRUCE FINDLAY. (See page 206.)

named being extremely well developed, thus contributing an additional and magnificent attraction to the Show.

The large permanent iron-framed marquee and the handsome glass buildings that are usually employed for the Society's celebrated Whitsuntide shows were completely filled with the 164 entries in the forty-six classes devoted to plants, the numerous groups and collections not for competition, staged by nurserymen and others, adding very largely to the extent of the Exhibition. The large marquee chiefly contained the competing groups and some of the smaller classes, while the exhibition house was occupied with the Crotons, Dracænas, Ferns, new plants, Orchids, and general collections, which, being very taste-

fully arranged, constituted in themselves a display of remarkable beauty. As they formed the most important portion of the Show in the section now under consideration it may be well to first notice the classes devoted to

FINE-FOLIAGE PLANTS.

Not only were Crotons well shown, but Dracænas, Palms, and Ferns were also healthy, fresh, and beautiful; but as the first named were especially remarkable they deserve attention first.

Crotons.—Two classes were appropriated to these plants—namely, one for nurserymen and the other for amateurs, ten specimens being required in the first, the prizes being £5, £4, and £3, one pound less

in each prize being offered for six in the other class. Four collections of ten were staged, all very close in merit and nearly equally well coloured. Messrs. Ireland & Thomson of Edinburgh were deservedly awarded premier honours for specimens such as are seldom seen, for in symmetry, health, and colour they could scarcely have been surpassed. Some of the smallest did not exceed 3 feet in height, while others reached 8 or 9 feet, and 4 or 5 feet in diameter. The varieties were *C. majesticus*, *C. Disraeli*, *C. Princess of Wales*, *C. Etna*, a handsome and richly coloured form; *C. fasciatus*, extremely fine, foliage large and brightly coloured; *C. Weismanni*, a grand example; *C. angustifolius*, *C. interruptus aureus*, *C. pictus*, and *C. Queen Victoria*, a well-known variety, superbly represented. Mr. B. S. Williams, Upper Holloway, London, and Mr. J. Cypher, Cheltenham, were awarded equal second prizes for collections that were very little inferior to Messrs. Ireland & Thomson's handsome group, and their respective merits were such that any other disposition of the awards would have been unjust to one of the exhibitors. Mr. Williams' plants were of good size and beautifully coloured, the best being *C. Warreni*, *C. Truffautianus*, *C. Johannis*, *C. Williamsi*, and *C. Stewartii*. Mr. Cypher had excellent specimens of *C. Queen Victoria*, *C. Sunset*, very bright; *C. Johannis*, and *C. Weismanni*. An extra prize was awarded to Messrs. R. P. Ker & Sons, Liverpool, for moderate-sized specimens of *C. Disraeli*, *C. Hanburyanus*, *C. undulatus*, and *C. Mortii*, all beautifully coloured. Only two collections were contributed in the amateurs' class, Mr. W. Lingard, gardener to H. Samson, Esq., Bowdon, securing the chief award for well-grown specimens of *C. pictus*, *C. Queen Victoria*, *C. Weismanni*, *C. angustifolius*, *C. Disraeli*, and *C. majesticus*; Mr. C. Paul, gardener to S. Schloss, Esq., Bowdon, being placed second with well-coloured but not such even specimens.

Dracenas.—Two classes were also devoted to Dracenas—for twelve and six specimens—the first from nurserymen the second from amateurs, the prizes being £8, £5, £3, and £5, £3, and £2. The best dozen plants were staged by Messrs. Ker & Sons, the specimens being healthy, of moderate size, very even, fresh, and bright in appearance. The varieties were *D. picta*, *D. Hendersoni*, *D. amabilis*, *D. nigrescens*, *D. recurva*, *D. speciosa*, *D. regina*, *D. Bausei*, *D. Goldiana*, *D. Salmonea*, and *D. Gladstonei*. Mr. B. S. Williams followed closely, having admirable specimens of *D. Thomsoni*, *D. Goldiana*, *D. albo-marginata*, *D. recurva*, *D. Duke of Connaught*, and several others. Messrs. Ireland & Thomson took the third position with very satisfactory examples of attractive varieties. The best amateurs' six were from Mr. W. Pratt, gardener to Lord Hill, Hawkstone, all good and satisfactory specimens—healthy, brightly coloured, and of moderate size, Mr. J. Hammond, gardener to Sir Wilfrid Lawson, Bart., M.P., Brayton Hall, securing second honours with very similar specimens but not quite so bright; while Mr. Beard, gardener to J. G. Adams, Esq., Ashton-on-Mersey, was placed third for creditable plants very close to the preceding in merit.

Palms.—Though not shown in large numbers some good specimens of these were staged, and were very effective in the general arrangement. In the nurserymen's class for six Mr. B. S. Williams had the premier collection, large handsome specimens of the useful and handsome Palms *Chamaerops Fortunei*, *C. humilis*, the almost indispensable *Coccos Weddelliana*, *Geonoma Seemannii*, *Kentia australis*, and *K. Belmoreana*, both graceful forms. Mr. Cypher was second with very large specimens, but not quite so even and compact as the first-named. *Kentia Fosteriana*, *Thrinax elegans*, *Pritchardia pacifica*, and *Areca lutescens* were the most noteworthy. Messrs. J. Dickson & Sons, Chester, followed with healthy well-grown plants. In the amateurs' class for four Palms the prizetakers were Mr. Lingard, Mr. J. Hammond, and Mr. E. Tudgey, gardener to J. F. G. Williams, Esq., Worcester, who all contributed satisfactory specimens, mostly of good size, and differing but slightly in their respective merits.

Ferns.—In the one class for ten exotic Ferns from amateurs three handsome collections were contributed, the plants being equally remarkable for their size and vigorous health. Several *Gleichenias* and *Davallias* were particularly well shown, and they all reflected considerable credit upon the exhibitors. Mr. Paul was adjudged the principal honours for meritorious specimens, that had evidently received intelligent and careful treatment. The finest plant was an example of *Gleichenia dichotoma*, 6 or 7 feet in diameter, and as fresh as could be desired. *G. flabellata*, *G. Mendelli*, and *G. rupestris* were also of considerable size and equally healthy, while the fine exhibition Fern *Davallia Mooreana* was admirably represented. Mr. W. Lingard proved a formidable competitor, but after careful consideration on the part of the Judges he was awarded the second prize. *Gleichenia dichotoma*, *G. speluncea*, *G. Mendelli*, 6 feet in diameter, *G. dicarpa*, and *G. rupestris* were the chief features in the collection, being of great size and healthy. Mr. J. Hesketh, gardener to Arthur Birley, Esq., Woodbank, Pendlebury, followed with clean, fresh, and vigorous plants, *Cibotium princeps* and *Cyathea medullaris* being the best.

The Tree Ferns were placed in the large marquee, being arranged at intervals in front of the groups, and thus producing a pleasing break in the view. Two classes were reserved for them, but the competition was confined to nurserymen. Mr. B. S. Williams gained the most important award for half a dozen beautiful specimens, very even in size, each about 10 feet high; *Cyathea Smithii*, *C. dealbata*, *C. Burkei*, *Alsophila australis*, *A. Williamsi*, and *Dicksonia antarctica*

were the species shown, the *Cyatheas* being especially noteworthy for their gracefulness. Messrs. J. Dickson & Son, Chester, had the second prize for healthy specimens, one *Dicksonia antarctica*, about 9 feet high and with a handsome crown of fronds, being scarcely surpassed in the Show. *Cyathea dealbata* was also admirably represented among several other species of that genus and of *Alsophila*. Mr. Cypher had a less regular collection, and was accordingly adjudged the third position, though in the beauty or rarity of the kinds shown and the quality of the plants he was little behind the other competitors. *Alsophila elegantissima*, *Cibotium Schiedei*, and *Cibotium regale* were the most noteworthy.

Filmy Ferns are comparatively rarely seen at exhibitions, at least in any quantity. A few specimens are occasionally shown amongst the specialities of nurserymen's groups, but as a rule they are confined to two or three of the most common and best known species and varieties. There is one good reason for this customary absence—namely, that Ferns with fronds of such delicate texture are quite unsuited for the rather severe ordeal of being exposed in ordinary exhibition tents even for a single day, and plants of considerable value may be injured beyond all hope of recovery in a very short time after their arrival at the show, even though they may be conveyed thither safely. The advantages of the close glass house at the Manchester Botanic Garden, however, induced four exhibitors to send collections of these charming little Ferns, about twenty specimens being staged, mostly in good condition. In the nurserymen's class for eight specimens Mr. B. S. Williams was the only exhibitor, and was deservedly awarded the first prize for the following: *Trichomanes maximum*, *T. humile*, *T. auriculatum*, the delicately pretty *T. trichodeum*, *Todea superba*, *T. intermedia*, *Hymenophyllum hirsutum* and *H. demissum*, some of the best forms in each of the three genera. The plants were mostly growing upon stumps of Tree Ferns, one end of which was plunged in a deep pan of fine spar, the delicate kinds being covered with a bellglass. Though Mr. Williams won uncontested honours, the amateurs' class was better filled, as three collections of four plants each were staged, and the plants generally differed very slightly in merit. Mr. C. Goodall, gardener to Mrs. Leech, Stalybridge, was first with *Todea pellucida*, healthy; *T. superba*, fine; *Trichomanes radicans*, and *Hymenophyllum demissum*. Mr. Tudgey was a close second with similar kinds to the first-named, healthy and fresh. Mr. G. Smith, gardener to John Rylands, Esq., Stretford, was a close second, having *Todea hymenophylloides* and *Hymenophyllum tunbridgense* very fine.

NEW PLANTS.

The new plants that had not been previously exhibited were few, but most of the best introductions of the past year were represented in the four classes provided. Several plants which are likely to prove of sterling value were shown, but, taking the classes generally, there was an absence of striking novelties.

For twelve new plants in or out of flower three collections were entered, Mr. B. S. Williams being placed first with healthy and neat specimens of the following—*Delabeckia rupestris*, an elegant plant with palmate leaves; the leaflets narrow, divergent, and dark green. In a small state it is well suited for table decoration. *Encephalartos Frederici Gulielmi*, a very distinct Cycad with rigid pinnate leaves; the pinnæ being narrow, closely set, and slightly woolly beneath. *Cycas undulata*, also a distinct Cycad, having leaves much less rigid than is usual in the genus, pinnate, somewhat short; the pinnæ bright green and with slightly undulated margins. *Aralia spinulosa*, a handsome form with pinnate leaves; the leaflets oval-elliptical, bright green, and distantly placed upon the petioles. *Alocasia Thibautiana*, a very fine plant, having heart-shaped leaves 2½ feet long by 2 feet broad, with a very dark green ground colour, the veins being strongly marked and white. *Croton Stewartii*, one of the section with leaves of moderate breadth, elliptical lanceolate in form, possessing rich tints of crimson and yellow, which in the specimen exhibited were very finely developed. *Aralia spectabilis*, a noble *Aralia*, certainly one of the most distinct and imposing in the genus. The leaves are pinnate, 2 to 3 feet long, with long pinnæ very deeply and irregularly cut. It is of spreading habit, and has a fine effect among other plants of more slender appearance. *Dracena Lindenii*, very distinct from the majority of Dracenas; the leaves are elliptical, broadly streaked with light and dark green, and a peculiar shade of yellowish white. *Philodendron elegans*, a form with pinnately divided leaves about a foot in length, the divisions being narrow and bright green; and *Aralia Chabrieri*, an extremely graceful plant and likely to become a general favourite, especially for table decoration, as it possesses a most pleasing lightness and elegance of appearance. The leaves are very narrow, linear or tapering, extremely dark green, with deep red midribs.

Messrs. R. P. Ker & Son secured the second position with neat and well-grown specimens of the following among others—*Zamia Watzleri*, a peculiar spiny-leaved Cycad, suggestive of *Encephalartos horridus* without the fine characteristic glaucous hue. *Dracena Bella*, a dark crimson narrow-leaved Dracena, well suited for table decoration. The margins of the leaves are a very bright shade of crimson. *Pelargonium Gloire d'Orleans*, one of the Ivy-leaved section which has been repeatedly exhibited and certificated in the neighbourhood of the metropolis. It is remarkable for the bright pink hue of the neatly double flowers. And *Croton Warreni*, a handsome *Croton*, with spirally twisted leaves of a rich crimson and yellow tint. Mr. J.

Cypher was third with smaller plants, mostly similar to those already mentioned, but containing in addition the following well-known plants—*Microlepia hirta cristata*, *Crotons Mortii* and *albicans*, *Thrinax elegantissima*, *Sabal coerulescens*, *Ixora regina*, and *Rhododendron Tylori*, the last-named being scarcely correctly classed as a new plant.

For six new plants in or out of flower, introduced into Europe by the exhibitor, and not in commerce, there was no competition, Mr. B. S. Williams being the only exhibitor, and securing the premier award for an admirable collection comprising the following—*Sauvagea aureo marginata*, a peculiar variegated *Sansevieria*, the leaves being a foot long, 2 to 2½ inches broad in the middle, tapering to the apex; the centre is greenish, and the margins light yellow, very clearly defined. *Anthurium Dickii*, somewhat suggestive in habit of *Anthurium acaule*, but with narrower and stiffer leaves. These are 2 to 3 feet long and 5 to 6 inches broad, tapering, and of a bright shining green; petioles very short and broad. *Heliconia nigro-punctata*, a Musa-like plant with dark green leaves, ribbed, margined, and tinged with deep red. *Croton Bruce Findlay*, a handsome new *Croton*, having ovate elliptical leaves 9 to 15 inches long, 3 to 4 inches broad, dark green with bright yellow veins. *Kentia cristata*, a neat and graceful pinnate-leaved Palm; and *Dracæna Williamsi*, a distinct and peculiar form with tapering leaves irregularly streaked with green and crimson.

For one new plant in flower and not in commerce there were two competitors—namely, Mr. B. S. Williams, and Mr. E. Mitchell, gardener to Dr. Ainsworth, Cliffe Point, Lower Broughton, who were placed first and second respectively. Mr. B. S. Williams showed a pretty Orchid, *Angræcum amabile*, of dwarf habit and having short leaves. The flowers are small, creamy white in colour, wax-like in texture, and very fragrant; the petals and sepals being narrow, acute, and strongly recurved. The flowers are borne on a spike about 6 inches in length. Dr. Ainsworth's plant was also an Orchid, *Cypripedium Ainsworthii*, the result of a cross between *C. Sedeni* and *C. Roezlii*, and partaking of the characters of each, that of the former predominating.

For a new fine-foliage plant not in commerce there were three exhibitors, Messrs. Ireland & Thomson securing chief honours with *Croton Thomsoni*. This is a handsome *Croton* with leaves indistinctly lobed, somewhat like *C. Disraeli*, about a foot long and 4 inches broad at the widest portion, tapering to the apex. The ground colour is green, the midrib and veins being bright yellow. Judging by the specimen shown the variety appears to colour extremely well, and is likely to become a favourite. Mr. B. S. Williams was second with *Asplenium horridum*, a distinct and effective Fern with pinnate fronds 2 feet or more in length, the pinnæ deeply lobed. The frond is triangular in outline, and has a brown stipes. Messrs. R. P. Ker and Sons were third with *Lomaria obtusata*, a New Caledonian Fern of neat habit, the fronds 6 inches long and 1 inch broad, with pinatifid segments.

In addition to the above plants in competition large numbers of new and choice plants were shown by Messrs. Veitch & Sons, Chelsea, and Mr. B. S. Williams, and as several of these were certificated they may be fittingly mentioned here. Messrs. J. Veitch were awarded certificates for the following—*Cypripedium porphyrospilum*, a distinct and pretty form of Ladies' Slipper, which has previously been certificated at Kensington and described in these pages. *Cypripedium albo-purpureum*, a hybrid between *C. Schlimii* and *C. Dominii*, with pinkish flowers and spirally twisted petals. It evidently partakes of the characters of each parent. *Cypripedium selligerum majus*, a fine form of *C. selligerum*, the flowers large and colours good. *Davallia elegans polydactyla*, a variety of this graceful Fern with long crisped points to the fronds. *Heliconia aureo-striata*, leaves elliptical, green veined with yellow, distinct and pretty. *Rhododendron Duchess of Connaught*, one of the most attractive of the greenhouse hybrid *Rhododendrons*, with neat, wax-like, coral-scarlet tubular flowers in compact heads. *Asparagus plumosus nanus*, a charming gauze-like plant of dwarf habit, the leaves being most delicately and finely divided, imparting an indescribably graceful appearance to the plant. *Yucca filamentosa elegantissima*, a neat and brightly coloured form of this pretty *Yucca*. *Sarracenia melanorhoda*, a small *Sarracenia* with short dark red pitchers, which has been previously described when certificated at Kensington some months ago. *Pachystoma Thomsonianum*, a pretty little Orchid with white and purplish-violet flowers. *Lilium auratum platyphyllum* and *L. speciosum gloriosoides*, two handsome and distinct Lilies which have been frequently referred to. *Sarracenia formosa*, a hybrid between *S. psittacina* and *S. variolaris*, combining one of the most attractive characters of each. *Croton Hawkeri*, the neat form figured in these pages a short time since. The plant was in good condition, and evidently well merits the honours that have been accorded it. *Nepenthes bicalcarata*, the large-pitched form now familiar to most visitors to metropolitan shows. *Quercus cuspidata variegata*, a very distinct Variegated Oak with small leaves prettily marked with green and white. *Lastrea Richardsii multifida*, an elegant Fern with neat fronds, dark green, and divided at the apex. *Ixora Westii*, a beautiful hybrid, the result of a cross between *I. odorata* and *I. amboynensis*. The corolla tubes are long, bright pink, the lobes being of a lighter shade; and *Lælia Sedeni*, stated to be a hybrid between *Cattleya Sedeni* and *C. devoniensis*, with purplish sepals and petals, and a very rich crimson lip.

Mr. B. S. Williams' certificated plants were the following—*Nepenthes*

bicalcarata, noticed above; *Delabechia rupestris*, *Alocasia Thibautiana*, *Dracæna Lindenii*, *Aralia Chabrieri*, *Croton Bruce Findlay*, *Heliconia nigro-punctata*, *Asplenium horridum*, and *Asplenium novæ-caledoniæ*, which are described in the winning collections already mentioned; *Begonia Williamsi*, a very free-flowering variety of the Tuberous section, with large white flowers of good form. Mr. J. Anderson, Meadowbank, obtained a certificate for *Cattleya gigas superba*, a handsome variety with large flowers, the sepals and petals broad soft crimson purple in hue, with an extremely rich crimson-tinted lip. Messrs. Ireland & Thomson were accorded a certificate for *Croton Thomsoni*, a handsome form with partly lobed leaves a foot to 15 inches long, and 4 inches broad at the widest part; dark green veined with bright yellow. Messrs. Osborn & Sons received a similar award for *Hedera Helix madeirensis albo-marginata*, the handsome variegated Ivy already described; Messrs. Ker & Son for *Dracæna Lindenii*, *Lomaria obtusata*, and *Aralia Chabrieri*; Messrs. H. Waterer for *Abies canadensis pendula* and *Abies canadensis variegata*, recently shown at Kensington; and to MM. Chantrier, frères, for *Croton Bergmanni*, *C. Mortefontaineensis*, and *C. mosaicus*, described elsewhere in this report.

GROUPS AND COLLECTIONS.

The large marquee presented a spectacle such as horticulturists and visitors to exhibitions seldom have the opportunity of beholding, and when viewed from the upper part of the slope at the end near the principal entrance the effect was grand in the extreme. All the groups in competition were staged there, together with many of the miscellaneous collections; and not only was considerable taste displayed in the arrangement of the groups individually, but judicious care had also been exercised in their disposition, so as to produce as fine a general effect as possible. Handsome banks of foliage and flowers were relieved at intervals by clumps of Lilies, while the noble Tree Ferns already referred to were like living columns amidst this palatial wealth of beautiful plants. There was but one exhibit that seemed out of harmony with the arrangements—namely, a so-called "trophy," a large polygonal stand of vegetables and fruit, which received a very general condemnation from both exhibitors and the public.

Two classes were provided for groups of plants arranged for effect, one for amateurs and the other for nurserymen, the prizes in each being liberal—namely, £20, £15, £10, and £5. The first was to occupy a space not exceeding 20 feet by 10 feet, and in this class there were six entries. Mr. G. Smith, gardener to J. Rylands, Esq., Stretford, was placed in the foremost rank of the exhibitors for a highly satisfactory group, which was not only remarkable for the admirable quality of the plants composing it, but also for the artistic taste manifested in the arrangement. No great efforts were made in the direction of originality or elaborateness of design, but the plants appeared to have been placed together with easy freedom and with the endeavour to render it as diversified as possible with moderate materials. The fine-foliage plants comprised good examples of Palms, Ferns, *Crotons*, *Dracænas*, and *Yuccas*, while among the flowering plants Lilies, *Eucharises*, and *Ixoras* were the most striking, various smaller plants being employed to fill up with. Mr. C. Paul, who followed closely, also had a group which was noteworthy for the number of well-grown specimen plants it contained; but it was less effective in general arrangement, and to this fact, no doubt, was due the second-rate position accorded it. Some of the specimens, too, such as the *Lapagerias*, which were trained on globular trellises, though highly creditable as regards their condition, were unsuited for associating with other more graceful or less formally trained plants. *Ixoras*, *Dipladenias*, *Coleuses*, *Trec Ferns*, *Palms*, *Crotons*, and Lilies were the chief components of the group, all being in fine healthy form. Mr. J. Hammond secured third honours for a neat little group, but scarcely full enough. The plants were placed upon the turf slopes at the side of the marquee in step-like form, rising in successive semicircles. The plants were chiefly of moderate size, much smaller than those in the two preceding groups, but representing similar kinds, the most noteworthy feature being the margin of *Adiantum cuneatum* and *Panicum variegatum*, which was very pretty. Mr. G. Wilkes, gardener to Mrs. Tambaci, Cheadle, was placed fourth with a fairly good group that would have obtained a much higher position at many exhibitions that have been held this year. *Ericas*, *Bougainvilleas*, *Caladiums*, *Roses*, Lilies, and *Pelargoniums* were the principal plants employed, and these were judiciously disposed. One other group in this class deserves notice, though no prize was awarded for it, namely that from Mr. J. Hill, gardener to George Hardy, Esq., Timperley, for the plants composing it were of unusually good quality, the *Ixoras*, *Stephanotis*, Ferns, and *Crotons* being in admirably healthy condition.

In the class reserved for nurserymen the group was to occupy a somewhat large space—namely, 30 feet by 15 feet. There were five entries, and the competition was fairly keen and interesting, as the exhibits were very close in merit. Messrs. R. P. Ker were adjudged premier honours for a very pleasing group, in which the principal design had apparently been to afford as much diversity of surface as possible, much in the style of Messrs. Wills' or Hudson's groups, which are so much admired at metropolitan shows. If there was any defect it was a slight approach to overcrowding, and some of the plants could have been advantageously dispensed with, as the really handsome specimens might have then been seen to the best advantage. The groundwork was composed of *Adiantums*, from which

arose the Palms, Crotons, Lilies, Dracænas, and numerous other plants employed with such excellent results. Mrs. E. Cole & Sons, Withington, took the second place, staging a rather more formal but brighter group than the first, as flowering plants were more freely employed, Zonal Pelargoniums contributing a large share of colour. Dipladenias, Ericas, and Liliun auratum were also well represented, the usual fine-foliage plants being included with numerous small examples of the charming little Caladium argyrites near the fore part of the group. Messrs. W. G. Caldwell & Sons, Knutsford, were third, having a collection of remarkably well-grown plants, but mostly a little too formal in outline to admit of successful or effective arrangement. A great diversity of plants was included, Petunias, Gloxinias, Ericas, and Bougainvilleas being some of the most noteworthy among the flowering plants, Palms and Ferns among the fine-foliage contingent being generally large. Mr. R. Simpson, Selby, secured the fourth prize, and Mr. T. Popc, Astley Bridge, an extra prize, both contributing meritorious groups, the former containing a large proportion of softwooded flowering plants, and the latter a similar proportion of fine-foliage plants. The numerous other handsome groups not in competition are described in another portion of the report.

The only class for a collection of specimen plants in which arrangement for effect was not required was that for twenty miscellaneous plants, eight in flower and twelve fine-foliage, which was open to all competitors, the prizes being £20, £15, and £10. There were four entries, Mrs. E. Cole & Son and Mr. Tudgey contesting keenly for the first place, which honour was finally adjudged to the former, who had their well-known handsome specimens in excellent condition. The following were included in Mrs. Cole's collection:—Croton Weismanni, a grand example, 6 feet high and superbly coloured; Croton Disraeli, also large and richly coloured; Cocos Weddelliana, 7 feet high, and very healthy; Gleichenia Mendelli, 5 or 6 feet in diameter, fresh and vigorous; Latania borbonica, large; Pritchardia pacifica, a noble specimen; Kentia Fosteriana, Cibotium Schiedei, Cycas revoluta, Phormium tenax variegatum, and Gleichenia rupestris glaucescens, all large and handsome, were the best of the fine-foliage plants. Among the flowering plants were neat specimens of Dipladenia amabilis and D. Brearleyana, the flowers being abundant and bright in colour; Ixora coccinea and I. Fraseri formed another pretty pair, compact and well flowered; Erica Eweriana superba, E. Marnockiana, E. Turnbulli, and Allamanda nobilis were the others in that section, and were of similarly good quality to those already mentioned. Mr. E. Tudgey had smaller specimens, but very compact, well trained, and as fresh and healthy as could be desired. Croton Queen Victoria was remarkably bright, Gleichenia rupestris was large and vigorous, Cycas circinalis and C. revoluta both handsome, Latania borbonica of enormous dimensions, Allamanda nobilis beautifully flowered, Francisca calycina major good, and Anthurium Schertzerianum, fair, were the most notable among the plants. Mr. G. Smith was third with meritorious specimens, his Lapageria rosea and alba, globularly trained and very healthy, being two of the best. Alocasia Lowii and Croton variegatus were also handsome.

VARIOUS SMALL PLANT CLASSES.

Several of these, though not individually large or imposing, proved of great utility in the general arrangements of the Exhibition, the Heaths, Liliums, Achimenes, Petunias, Balsams, Fuchsias, and Pelargoniums being employed to great advantage as small groups in the recesses between the larger collections in the marquee. The Orchids, Nepenthes, Sarracenias, and medicinal plants were placed in the glass house, the dinner-table plants and Cockscombs forming a line down the centre of the fruit table in the large marquee.

Orchids.—Those who have seen the magnificent displays of Orchids at the Whitsuntide shows of this Society would probably be a little surprised that a larger number of plants was not contributed on this occasion. Certainly the end of August is not a favourable season for such plants, as comparatively few are in flower, yet many more might have been reasonably expected. Two classes were provided, one for amateurs the other for nurserymen, eight plants being required in each, and the prizes were equal—namely, £8, £5, and £3. Only two competitors appeared in the nurserymen's division—Mr. B. S. Williams and Mr. Cypher, who secured first and second honours in the order named. The collection shown by the former included Dendrobium Pierardi with eight growths and bearing a large number of flowers; a brightly coloured variety of Vanda suavis, the plant very healthy; Oncidium prætextum with seven panicles; Oncidium macranthum having a large panicle of its fine yellow flowers; Lælia elegans Turneri, beautiful soft crimson; Saccolabium Blumei, handsome, with six spikes; Cypripedium Harrisianum in excellent condition with thirteen flowers; and Cattleya crispa with seven spikes, a handsome plant and perhaps the most attractive in the collection. Mr. J. Cypher's specimens were smaller but clean, fresh, and healthy, one example of Disa grandiflora being remarkably noteworthy, having eight spikes bearing together about two dozen flowers. Cypripedium Sedeni, Saccolabium Blumei, Odontoglossum Uro-Skinneri, and Epidendrum vitellinum majus were also well shown.

In the amateurs' class there were three competitors, who exhibited neat plants but no specimens of unusual size or especial rarity. Mr. James Hill, gardener to George Hardy, Esq., Pickering Lodge, Timperley, was the most successful, being placed first with Lælia Dayana, well flowered; Cattleya crispa superba, good; Cattleya Loddigesii, very pretty, the pale pink sepals and petals contrasting agreeably.

Miltonia spectabilis superba and Oneidium prætextum were attractive among several other smaller plants. Mr. W. Perry, gardener to H. C. Miles, Esq., Penpole, Bristol, was a good second. Disa grandiflora, Pilumna fragrans, and Epidendrum cochleatum majus were the best plants, the Pilumna being in very satisfactory condition as regards the number of flowers. The third position was accorded to Mr. E. Mitchell, gardener to Dr. Ainsworth, Cliffe Point, Broughton, for neat but not particularly large plants.

Pitcher Plants and Sarracenias.—In the nurserymen's class for the best collection of the above Mr. B. S. Williams was the only exhibitor, but his group was of great merit, and included most of the best forms both of Nepenthes and Sarracenias in commerce. The plants, too, were in a very healthy fresh condition, and it was surprising to observe what a proportionately large number of pitchers some small specimens were bearing. It would be unnecessary to give the names of all, but the following were some of the most noteworthy. Nepenthes bicalcarata, N. ampullacea, N. Hookeriana, N. Outramiana, N. sanguinea, N. Rafflesiana, and N. Courtii. The Sarracenias were S. Drummondii and varieties, S. flava and varieties, S. purpurea, S. rubra, S. variolaris, and others all good. In the amateurs' class two collections were staged, the premier by Mr. A. Williams, gardener to Joseph Broom, Esq., Wood Lawn, Didsbury, and the second by Mr. J. Morton, gardener to Jas. Fildes, Esq., Chorlton-cum-Hardy. The Didsbury plants were very healthy, indeed they form one of the specialties in Mr. Broom's garden, and receive every attention requisite to ensure their success. The Nepenthes were the chief represented, N. phyllamphora, N. Hookeriana, N. robusta, N. Laurenciana, N. Rafflesiana, N. gracilis, and N. Dominiana were particularly fine. The Sarracenias purpurea and flava were also in good condition. The other plants were smaller but carefully grown, and represented some of the best forms known, including several of those named above.

Economic and Medicinal Plants.—Though these were represented by only one collection—namely, that from Mr. B. S. Williams, the premier award secured was well deserved, as twenty plants were shown, including examples of many useful and interesting plants. They were also sufficiently developed to fairly indicate their respective characters. Some of the most remarkable were Theobroma Cacao (Cocoa), Arenga saccharifera (the Sugar Palm), Maranta arundinacea (Arrowroot), Phytelephas macrocarpa (the Ivory Nut Palm), Coffea liberica (Liberian Coffee), Salvadoria persica (the reputed Mustard Tree of the Scriptures), Areca oleracea (the Cabbage Palm), the African Mangosteen, Pepper, the Traveller's Tree, Tapioca, the Balsam of Peru, and several others made up this very interesting group, which attracted much admiration and attention from the general visitors, who have not often the opportunity of seeing such plants at horticultural shows.

Dinner-table Plants.—In the two classes devoted to these the competition was keen, the plants staged forming a central line on the fruit table. In the nurserymen's section for twelve plants Mr. B. S. Williams was an excellent first with even plants of moderate size, but healthy, graceful, and well selected. The kinds shown were Aralia elegantissima, Rhipis humilis, Pandanus Veitchii, Delabechia rupestris, Croton Weismanni, Aralia Veitchii gracillima, Dracæna Ernesti, Geonoma gracilis, Croton Prince of Wales, Aralia spectabilis, and Aralia Chabrieri. They were all in 48-sized pots, and therefore appeared light and elegant, well suited for the purpose for which they were intended. Messrs. Ireland & Thomson followed closely, also with useful plants, Messrs. Jones & Son, Shrewsbury, taking the third place. The amateurs' exhibits in the class for half a dozen plants were neat and well grown generally, but in some of the collections the pots were slightly too large. Mr. W. Plant, gardener to R. P. Gill, Esq., Wood Hayes Hall, Ashton-on-Mersey, was adjudged chief honours, his best plants being Cocos Weddelliana, Croton Disraeli, and Pandanus Veitchii variegata. Mr. H. Beard, gardener to G. D. Adams, Esq., Ashton-on-Mersey, was a close second, and Mr. H. German, gardener to F. B. Cutts, Esq., Nottingham, followed.

Ericas.—In the nurserymen's class for six Heaths Mr. J. Cypher was accorded chief honours for plants of moderate size, but well flowered and healthy. Mrs. Cole & Son followed with fairly good specimens, but not remarkably profusely furnished with flowers. Mr. Thomas Pope, Astley Bridge, took the third position for similar plants very little inferior to the preceding collection in merit.

Liliums, Pelargoniums, Balsams, Petunias, Coleuses, Yuccas, succulent plants, and Achimenes were all small classes, and, except the first-named, do not require special mention. Mr. C. Turner of Slough had a collection of Liliun auratum, which was very fine, and well merited the chief prize which was awarded it in the class for six plants. The specimens were bearing fine heads of flowers, and being arranged around the Tree Ferns the effect was very satisfactory. Several groups of Liliun lancifolium were also contributed, the plants generally being in good condition. Mr. B. S. Williams' group of variegated Yuccas was especially noteworthy at one end of the large marquee. It was the only collection staged in the class for eight specimens, and was awarded first honours.

CONIFERS AND JAPANESE PLANTS.

These were arranged in groups outside the Exhibition house and large tent, and on the terrace in the front of the house. Some of the large Conifers were remarkable for their bright colour. For the

best collection of Japanese plants, Maples and others, Messrs. J. Standish & Co., Royal Ascot Nurseries, took the lead with several fine groups very tastefully arranged, including some very fine species and varieties of Maple, with *Lilium auratum* freely employed. Mr. John Waterer, American Nursery, Bagshot, was second with a very choice collection. In the class for twelve hardy evergreens, trees and shrubs, Messrs. John Waterer were awarded the first prize for a fine example of Golden Yews, Piceas, Retinosporas, Abies, and other remarkably developed specimens of large size. Messrs. Paul & Sons, Cheshunt, were placed second with a similar group. In the class for six Golden Yews Messrs. Caldwell & Sons were first with some grand golden specimens of *Taxus elegantissima*. Messrs. John Waterer and Sons were second with a nearly equally good lot. In the class devoted to Hollies Messrs. John Waterer & Sons were first with magnificent plants highly coloured, the standard plants having remarkably clean stems.

THE VEITCH MEMORIAL PRIZES.

Fifty pounds in ten £5 prizes, accompanied by a Veitch Memorial medal, were offered to amateurs and gentlemen's gardeners by the trustees of the above fund, the competition being good in most classes.

In the class for one specimen Orchid, a single plant, a made-up specimen not being admissible, there were several exhibitors, but except the winning plant from Mr. John Roberts, gardener to Baroness L. de Rothschild, Acton, there was not anything remarkable. The premier specimen was *Saccolabium Blumei majus*, very healthy and bearing two fine spikes of flowers.

For one stove plant in flower Mr. Tudgey was accorded the prize and medal for a very handsome example of *Dipladenia hybrida*, one of the finest specimen plants in the Show. It was about 4 feet in height, trained in a globular form, the foliage being very healthy and the flowers numerous and richly coloured. In the same class F. Tagart, Esq., Bristol, showed a specimen of *Eucharis amazonica* which, though not considered sufficiently good to entitle it to precedence over the *Dipladenia*, was highly commended, and attracted equally as much attention and admiration. It was about 5 feet in diameter, very evenly trained, and bore over one hundred spikes, each with from three to five flowers.

For one greenhouse plant in flower several handsome specimens were staged, Mr. Tudgey again securing the prizes with a very beautiful well grown and well-trained example of *Erica Uhria superba*. It was about 5 feet in diameter, very even in form, and flowering most profusely. E. Adams, Esq., Swallow, Gateshead, staged a remarkably fine *Phenocoma prolifera* Barnesi in excellent health and flowering well. Mr. J. Pigg, gardener to J. Forshaw, Esq., Fulwood, Preston, also exhibited a plant of *Lapageria alba*, healthy, even, and flowering freely.

For the best collection of hardy Ferns, not less than twenty varieties, there were several entries. Mr. Robert Tyldesley, Worsley, securing the prize and medal with a pretty collection of *Scolopendriums*, *Lastreas*, *Athyriums*, *Polystichums*, &c., very fresh and healthy. These were especially interesting, as being the production of a working man who has had but little spare time to devote to his favourites.

In the class for fifty herbaceous and alpine plants W. Brookbank, Esq., Brookhurst, Didsbury, was the successful exhibitor with an interesting collection, although the season is advanced for such plants. Some of the most noteworthy were *Liatris spicata*, *Campanula Sibthorpi* with long spikes of small purplish flowers with narrow petals; *Veronica longifolia subsessilis* in first-rate condition; *Androsace lanuginosa*, *Statice Gmelini*, and *Anemone Honorine Jobert*.

MISCELLANEOUS PLANT EXHIBITS.

A large and important addition was made to the Show by the groups and single plants contributed by nurserymen and others not in competition, indeed they would have constituted an exhibition alone. The collections from Messrs. Veitch and Williams, which occupied equal spaces on a central stage in the glass house, have already been incidentally referred to, and most of the remarkable or specially noteworthy plants have been briefly described, therefore it is unnecessary to enter into details. Suffice it that they were two of the finest groups of new, choice, and valuable plants that have been seen in England for some time. Another handsome group from Mr. Williams occupied a prominent position near the entrance to the large marquee. It consisted largely of well-coloured Crotons, *Liliums*, Palms, among which the noble-leaved *Phenicephorum seychellarum* was notable, Ferns, numerous examples of *Hydrangea paniculata grandiflora* and *Ixoras*, with a neat margin of *Rhodanthes* and *Adiantums*. Immediately opposite this group, also near the entrance, was a similarly beautiful contribution from Messrs. Cutbush & Son, Highgate, which contained a large proportion of ornamental foliage plants, such as Palms, *Cordylines*, *Grevilleas*, *Ericas*, *E. McNabiana* being well represented, *Dracaena Goldiana*, an interesting little group of medicinal and economic plants, including the Camphor Tree, Mahogany, Allspice, Coffee, Pepper, Balsam of Peru, and Cinnamon; but the chief feature was the collection of forty-six varieties of Ivy, representing all the best varieties in commerce, the newest and probably the finest as a variegated form being *Hedera madeirensis variegata*, the specimens shown possessing the clear and distinct variegation well marked.

Upon the sloping bank at the end of this marquee The General Horticultural Company (John Wills), Limited, Regent Street and Anerley, had a group that for effectiveness and artistic beauty was not surpassed in the whole Exhibition. It was composed of Crotons, superbly coloured; *Dracaenas* also well coloured and healthy, Palms, *Nepenthes*, and *Adiantums* *Bausei*, *cuneatum*, and *gracillimum*. The Ferns, chiefly the first named, formed a soft groundwork, among them being tastefully disposed the Crotons and *Dracaenas*, which were of moderate size though so bright in hue, and needed the elegant specimens of *Kentia Fosteriana*, *Cocos Weddelliana*, and other Palms to impart a diversity to the appearance. At the corners were two fine *Nepenthes* upon pedestals about 3 feet high, around the stems of which some of the graceful forms of *Asparagus* of the plumosus type were twined, effectually concealing the stands and pots. A large number of grand Crotons were represented, but the following were some of the best—*C. Williamsii*, remarkably rich; *C. Mortii*, *C. Challenger*, *C. Disraeli*, *C. Warreni*, *C. Hawkeri*, *C. triumphans*, *C. Rodeckianus*, *C. Evansianus*, *C. Sunset*, *C. mutabilis*, and *C. Chelsoni*. Of the *Dracaenas*—*D. Gladstonei*, *D. Fredericki*, *D. Wilsoni*, *D. alba marginata*, *D. Leopoldi*, and *D. Berkeleyi* were notable. At the lower portion of the same marquee a group of fine *Bouvardias* from Mr. J. Hoolcy of Stockport and Fallowfield, was noteworthy, numerous varieties being shown, and the plants were in vigorous health, flowering profusely.

The Tea Roses in pots from Messrs. Paul & Son, Cheshunt, were, however, the great attraction at that end, and as they were arranged in a circular group in the centre of the path they could be seen and admired by all. The pots varied in size, the plants being proportionate in dimensions, and a healthier or more satisfactory collection could scarcely be desired. The most notable varieties were *Alba Rosea*, *Madame Angele Jacquier*, *Perle des Jardins*, *Madame Willermoz*, *Catherine Mermet*, *Niphetos*, *Devoniensis*, *Madame Margottin*, *Souvenir d'un Ami*, *Duchess of Edinburgh*, and *Caroline Kuster*. Many visitors, especially the rosarians, freely expressed the opinion that there was no finer exhibit in the Show than this handsome group of Roses.

Messrs. Fisher, Son & Sibray, Handsworth and Sheffield, had a collection of greenhouse *Rhododendrons*, with several new plants in the fruit tent. The *Rhododendrons*, for which the firm is noted, were in very satisfactory condition, astonishingly vigorous in growth, and bearing fine trusses of their bright and delicately tinted flowers. *Duchess of Edinburgh*, *Princess Royal*, *Prince Leopold*, *Taylori*, *Duke of Connaught*, and *Princess Alexandra* were the principal varieties. Plants of a new white *Clove* named *W. P. Milner* were also shown. It appears to be a promising variety; the flowers large, full, and pure white. An attractive *Pelargonium*, termed *Princess*, was shown, being particularly noteworthy for the brilliant pink hue of the compact trusses of flowers. *Begonia corallina* is a handsome form of the *B. coccinea* type, which it nearly resembles, having pendulous panicles of coral red or scarlet flowers freely produced. Many other handsome plants were also included in this collection.

Among numerous other miscellaneous exhibits were two remarkably handsome collections of Crotons, one from MM. Chantrier, frères, Mortefontaine, France, who were the only foreign exhibitors in the plant section, and the other from Messrs. Ireland & Thomson. The first named included fine specimens of some of the best broad-leaved and distinct continental varieties of Croton, such as *President Chereau*, very broad, dark green, veined with bright yellow; *Baronne J. de Rothschild*, leaves obovate or elliptical in form, yellow, green, and crimson, very bright; *Baron Franck Selliere*, leaves 15 to 18 inches long, 3 to 5 broad, very distinct, green, veined broadly with yellow, and a light shade almost white; *Carrieri*, almost entirely yellow, bright and effective; *Mortefontaineensis*, somewhat of the *Disraeli* form, but larger and richly coloured; *Mosaicus*, broadly elliptical leaves veined with yellow and crimson, distinct and pretty. Several other fine varieties were also represented. Messrs. Ireland and Thomson's varieties were also handsome, including *Interruptus aureus*; leaves narrow, bright yellow centre; *Duke of Buccleuch*, slightly lobed, yellow colour, abundant and bright; *Hawkstoni*, narrow elliptical leaves, green, yellow, and crimson, rich tint, handsome; *Houldsworthi*, leaves elliptical, the yellow and crimson tints especially brilliant; and *Whittoni*, with narrow leaves, green, streaked with crimson and yellow.

Messrs. H. Cannell & Sons had an extensive collection of cut flowers, *Dahlias*, *Verbenas*, *Asters*, and innumerable others, with fine *Cockscombs* as a background, and an edging of *Alternantheras*. Messrs. C. Lec & Son, Hammersmith, had a collection of twigs of ornamental shrubs and trees; and Messrs. Laing & Co., Forest Hill, several boxes of fine Tuberous *Begonia* blooms.

Messrs. John Waterer & Sons exhibited some fine specimen Conifers, some of them being from 10 to 12 feet high. Mr. Anthony Waterer, Knap Hill Nursery, Woking, also staged a very fine group, that included fine specimens of many choice kinds; the Golden Yews being very bright, especially *Taxus baccata elegantissima*, more distinctly striped than the old varieties. *Abies Renaulti* was shown well, being very fine and a close thick grower. *Abies Pattoniana* was also good. Amongst *Cupressus* *Lawsoniana crecta viridis* stood out boldly, as also did the very fine golden variety. Many choice *Retinosporas*, *Thuja*s, *Pines*, and *Junipers* were arranged with other good old kinds of the several classes and looked effective and well

Messrs. Paul & Sons, Old Nurseries, Cheshunt, also staged a fine group of healthy and well-coloured plants, especially the Golden Yews, Thuja George Peabody, good; Abies Alcockiana, very fine; and Picea concolor. Messrs. Caldwell & Sons, Knutsford, staged a large group, which included magnificent specimens of Ilex Hodginsii, Golden Queen, and I. madeirensis nigrescens. Messrs. Osborn and Sons, Fulham Nurseries, exhibited their new variegated Ivy, Hedera Helix madeirensis variegata, a splendid variety with a very light clear variation; they also staged a small choice collection of Conifers. Messrs. Birkenhead, Sale, Manchester, had a large and handsome group of Ferns, comprising many choice species and varieties. Messrs. Dick Radclyffe & Co., High Holborn, exhibited a number of imperishable flower wreaths, and an ornamental fountain in the large marquee. Messrs. J. Dobbie & Co., Rothesay, Bute, had a fine collection of Pansy and Marigold blooms; and John Parshaw, Esq., Fulwood, showed two pans of Dionæa muscipula, the plants being in extraordinarily vigorous condition; the leaves very large.

CUT FLOWERS.

Ample provision was made for these, prizes being offered by the Society in thirty classes in addition to those of the National Rose and Carnation and Picotee Societies. Two long annexe tents, each nearly 100 feet long, at the end of the fruit marquee were filled with the exhibits in these classes, and in several the competition was very keen, this being particularly the case in the classes for bouquets, considerably over a hundred being staged. The great feature of the display however, especially as regards quality, was the

Dahlias.—Rarely have larger and better-formed examples of these popular flowers been seen at horticultural exhibitions, certainly not this year. Even those who object to great size in such blooms on the score of the usually attendant coarseness could scarcely have advanced this plea against the blooms in the leading collections, for massiveness and substance were united with refinement and symmetry. The colours, too, were very clear and bright in most cases. The principal class was that for thirty-six blooms, in which there were about eleven entries, though scarcely more than five or six staged collections. The premier honours were accorded to Mr. H. Harkness, Bedale, Yorkshire, for magnificent examples of the following varieties among others:—Critciron, Hon. Sydney Herbert, Harry, John N. Keynes, John Standish, Thomas Goodwin, John Kirby, Bessie Ford, Yellow Boy, Burgundy, Perfection of Primroses, George Smith, John W. Lord, Prince Arthur, Mrs. J. C. Quennell, Delicata, Perfection, Flag of Truce, Duke of Connaught, Royal Purple, Prince Bismarck, Countess of Pembroke, and Flora Wyatt. This stand was greatly admired by all, but especially by florists, who could appreciate the qualities so well developed. Messrs. Keynes & Co., Salisbury, were placed second with a collection of great merit and very slightly inferior to the first, though on careful examination the judging appeared correct. The colours of these blooms were remarkably fine—so clear and brilliant. Some of the most notable varieties were Lady Gladys Herbert, Earl Radnor, Shirley Hibberd, Frederick Smith, and Thomas Goodwin. Messrs. Cannell & Sons, Swanley, Kent, took the third position with good and carefully selected blooms, a large number of handsome varieties being represented. In the class for twenty-four the same exhibitors competed, and were accorded precisely similar positions. With twelve Messrs. Keynes, Cannell, and Harkness were again the prizetakers, but this time in a different order—as named here. For twenty-four Fancy Dahlias Messrs. Keynes & Co. gained the chief prize with handsome blooms of Annie Pritchard, Lizzie Leach, Egyptian Prince, Frederick Smith, and Henry Glasscock among others of considerable merit. Mr. H. Clark, Leeds, followed closely, and Messrs. Cannell secured the third prize. Messrs. Keynes were again first with twelve Fancy varieties, Professor Fawcett, Hercules, and Gaiety being noteworthy. Messrs. Cannell and Turner followed in that order, both showing good blooms.

Gladioli.—Another feature in the display of cut flowers were the collections of Gladioli in competition, but though some of the spikes were large and massive the general quality was not so good as we are accustomed to see at South Kensington occasionally. For the best collection of spikes, number not stipulated, Messrs. Kelway were to the fore with stands of nearly two hundred spikes, representing a large number of varieties. Messrs. John Thomson & Son, Newcastle-on-Tyne, were the only other exhibitors in the class, and staged a much smaller collection, though both flowers and spikes were fine. Messrs. Kelway had the only stand of twenty-four spikes, including excellent examples of the following varieties:—Countess of Craven, Agrius, Helen, Orontes, Robert Ker, Wm. Paul, J. Douglas, Mr. Ashbury, Robt. Tait, J. Downie, and Queen Mary. For twelve spikes Messrs. Thomson secured the first prize with perhaps the finest spikes in any of the classes, the flowers being of great size and substance, and closely placed in massive spikes. Mr. Harkness was a very good and close second, the colours being remarkably bright.

Herbaceous Cut Flowers.—Several pretty stands of these were contributed in the two classes devoted to them. For thirty-six bunches Mr. F. Perkins, Leamington, was the successful exhibitor, securing the chief award for an interesting collection, including Phlox John Laing, Pyrethrum Miss Kelway, Gypsophila paniculata, Yucca filamentosa, Achillea Ptarmica flore-pleno, Potentilla Don Quixote, Veronica longifolia subsessilis, Anemone Honorine Jobert, and many others of more or less beauty. Messrs. Thomson were second with

a similar stand, in which were some specimens of a white Mallow named Malva speciosa alba, closely resembling Malva moschata alba. In the class for twelve bunches Mr. Faulkner, gardener to F. R. Leyland, Esq., Woolton Hall, was placed first, having good specimens of Matricaria inodora fl.-pl., Galtonia candicans, Aconitum cæruleum, Amaryllis Belladonna, Stenactis speciosa, Dahlia coccinea, Lilium auratum, Campanula pyramidalis, and numerous others. Mr. F. Perkins and Mr. W. Plant followed in the order named with pretty collections.

In addition to the above, which can only be considered as the most striking features, there were classes for Stocks, Hollyhocks, Asters, French and African Marigolds, Phloxes, Pelargoniums, Verbenas, Pentstemons, and Pansies, all of which were well represented.

Bouquets.—As has been already noted, these were shown in large numbers, and some very tasteful examples of floral arrangement were contributed. For six wedding bouquets Messrs. Jones & Son were first with light and pleasing examples, chiefly composed of Eucharis, Pansies, Bouvardias, white Lapagerias, and Stephanotis, sufficient Fern fronds being employed to impart a gracefulness to them without rendering them dull. Mr. W. Brown, St. Mary's Grove, Richmond, was an admirable second, the bouquets containing some first-rate flowers well disposed. Mr. F. Perkins was third with carefully made examples. For the same number of ball-room bouquets Messrs. Jones & Son were again to the fore, having bright and elegant arrangements of Orchids, with other brightly coloured and choice flowers; Ixoras, Lapagerias, Disas, Oncidiums, Stephanotis, Masdevallias, and Forget-me-nots figuring conspicuously. Messrs. Turner Bros., Liverpool, were very good seconds; and Mr. Stephenson, Timperley, was a close third. Single bouquets were well shown by Messrs. Henry Cypher, Perkins; J. Kellett, Manchester; and J. Mason, Manchester.

Dinner-Table Decorations.—There were five entries in the class for a dinner-table laid for twelve persons, Mr. J. Cypher carrying off the principal prize with one of his most tasteful arrangements, lightness and brightness being the chief objects aimed at and attained. The central plant was a Cocos Weddelliana, which was surrounded by Orchids, Lilies, and Ferns, two side stands being gracefully decorated, and the fruit represented was Melons, Grapes white and black, Pines, Peaches, and Apricots. Mr. Mason followed with a pretty design but rather heavy in the centre; while Messrs. Jones & Son, who were third, had scarcely sufficient diversity in the arrangement, the vases being too low.

VEGETABLES.

An enormous quantity of vegetables of all descriptions was staged in the various classes devoted to them. A great percentage were of excellent quality; and, what is rather unusual, no blank spaces were to be seen when the tents were cleared for the Judges to commence. At the same time, if one-half of the intended exhibitors, notably in the Potato classes, had fulfilled their engagements, the confusion would have been great, space being limited and the localities hard to find. The staff had laboured hard and well to arrange everything satisfactorily, but a few large placards notifying each class would be far preferable to "Stewards" to indicate the respective localities. Owing to the stringent rules necessitating staging on the day prior to opening, an early clearance was made, and the Judges, of whom there appeared to be an unusual abundance, easily completed their duties by the appointed time for opening.

COLLECTIONS OF VEGETABLES.

In the premier class for twenty distinct varieties there were thirteen competitors, but no great difficulty was experienced in awarding the prizes. Mr. G. T. Miles secured the first prize with a very even lot, consisting of Tender and True Cucumbers, Stamfordian Tomatoes, Canadian Wonder Beans, Large Rouen Leeks, Walker's Exhibition Onions, Early Munich Turnips, Green Globe Artichokes, Telegraph Peas, Nantes Horn Carrots, Moore's Cream Vegetable Marrows, Carter's Incomparable Crimson Celery, Green Globe Savoy, Heartwell Marrow Cabbage, Stott's Red Beet, Carter's Giant Runner Beans, Covent Garden Perfection Potatoes, all very good; Maltese Parsnips, Walcheren Cauliflowers, Carter's Perfection Sprouts and Mushrooms being the only weak dishes. Mr. Muir, gardener to C. R. M. Talbot, Esq., Margam Park, very closely followed Mr. Miles, his Drumlanrig Tomatoes, Dickson's Eclipse Cauliflowers, Webb's Improved Banbury Onions, Intermediate Carrots, Beet, Culverwell's Giant Marrow Peas, and Wheeler's Cocoa-nut Cabbage being remarkably good. The third prize was awarded to Mr. J. Turk, Cheltenham, whose generally creditable collection included good Early Market Carrots and Artichokes. Fourteen exhibitors competed in the class for ten dishes. Mr. J. Snowden, Thirsk, secured the first prize with a very good collection, consisting of Eclipse Cauliflowers, Giant White Celery remarkably good, None-such Peas, Moore's Cream Marrows, Tender and True Cucumbers, Canadian Wonder Beans, International Kidney Potatoes, Excelsior Tomatoes, and Intermediate Carrots. Mr. W. Iggulden, gardener to the Earl of Cork, Marston, Frome, obtained the second prize with a collection but slightly inferior. His best dishes were Livingstone's Perfection Tomatoes, Nantes Horn Carrots, Suttons' Reading Exhibition Sprouts, Eclipse Cauliflowers, and Woodstock Kidney Potatoes. Mr. Crump, gardener to the Duke of Marlborough, Blenheim, was awarded the third prize, staging, among others, good examples of

Banbury Onions, Reading Exhibition Sprouts, Excelsior Tomatoes, and Intermediate Carrots.

POTATOES.

Eleven collections of twenty-four varieties of Potatoes were staged, the list of exhibitors including many of the leading Potato growers. Mr. J. Millen, gardener to the Marquis of Donegal, Hampstead Park,

Newbury, staged a very even clean lot of tubers, and was rightly awarded the first prize. The varieties consisted of Porter's Excelsior, Washington, Magnum Bonum, Schoolmaster, Late Rose, Mona's Pride, Covent Garden Perfection, Triumph, International, Beauty of Hebron, Red Emperor, Beauty of Kent, St. Patrick, Vicar of Laleham, Snowflake, Lye's Favourite, Pride of Ontario, Purple Ashleaf, Woodstock Kidney, Fenn's Bountiful, Radstock Beauty, Heather Bell, Suttons'



Fig. 34.—DENDROBIUM SPLENDIDISSIMUM. (See page 209.)

Fillbasket, and Trophy. Mr. D. Lumsden, gardener to Lady M. Hamilton, Bloxholm Hall, followed with, among others, good examples of Prince Arthur, International Kidney, Scotch Blue, Schoolmaster, Edgeott Seedling, and Washington. The third prize was awarded to Mr. W. Kerr, Dumfries, with a creditable but over-polished collection. There were twenty-three collections of eighteen varieties of Potatoes, and Mr. Millen was again the most successful exhibitor;

but his best tubers were undoubtedly in the larger collection. The varieties consisted of Covent Garden Perfection, Garibaldi, Beauty of Kent, Favourite, Early Bird, Pride of Ontario, International, Salmon Kidney, Reading Abbey, Late Rose, Schoolmaster, Trophy, Magnum Bonum, Vicar of Laleham, Beauty of Hebron, Snowflake, and Radstock Beauty. Mr. McKinlay, Headley Lodge, Penge, was a close second, his dishes of Shelbourne, Beauty of Hebron,

King of Potatoes and others being particularly good. The third prize was awarded to Mr. Wildsmith, gardener to Lord Eversleigh, Heckfield, for, among others, creditable examples of Cosmopolitan, Woodstock Kidney, and Blanchard. There were no less than fifty entries of twelve varieties of Potatoes. Of this number about one-half failed to stage. The prizes in this class went to Mr. Gilbert, Burghley; Mr. Wildsmith, Heckfield; and Mr. Ross, Newbury, in the order of their names. There were forty-five entries in the class for twelve varieties of Potatoes, and of these about forty fulfilled their engagements. The first prize was awarded to Mr. R. Gilbert for a meritorious collection, among which were good examples of Radstock Beauty, Porter's Excelsior, Vicar of Laleham, Lapstone Kidney, Beauty of Hebron, and Grampian. Mr. Wildsmith and Mr. Ross, Welford Park, received the second and third prizes respectively, both staging very even good examples of popular varieties.

The tubers in the majority of cases were much too large to meet with the approval of properly qualified Judges, and those who intend competing at the forthcoming National Potato Show will do well to select smaller and perfectly even examples.

Messrs. Dicksons, Brown, & Tait were awarded a certificate for a seedling Potato, "Early Ebor," a smooth well-shaped variety; also for their new Tomato "The Queen."

VARIOUS SMALL CLASSES.

There were four classes for Onions, but the schedule was ambiguously worded, and the awards were unsatisfactory to many of the exhibitors accordingly. In a large class for spring-sown Onions Mr. Walker, Thame, and Mr. G. T. Miles secured the first and second prizes in the order named, both staging Walker's Exhibition, and Mr. R. Gilbert secured the third prize. Mr. R. Lloyd, Woking, Surrey, Mr. J. Ridsdale, gardener to the Marquis of Ripon, Lincoln, and Mr. J. Smith, Cheltenham, received the awards in the order named for Tripoli Onions. For red Onions Mr. J. Royle, Swinton, was placed first with good examples of a real red Onion, the second prize going to Mr. H. Marriott, Boston, for fair examples of Giant Rocca, and the third prize to Mr. R. Fitton, Ashton-under-Lyne. Messrs. J. Walker, Fitton, and Bolas, gardener to H. C. Pole Gell, Esq., received the prizes in the order, all staging varieties of the White Spanish, the real white Onions being passed over. Vegetable Marrows as a rule were shown much too large, the prizes being rightly awarded to comparative small examples. Mr. G. Jacob, Headington, C. H. Firth, Esq., Sheffield, and Mr. J. Dean, Altrincham, were the respective prizewinners. Four Cucumbers in two varieties were largely and well shown, all the prizewinners coming from Stretford. Mr. A. Fallows staged good examples of Stretford Defiance and a seedling, and was placed first, being closely followed by Mr. W. Brundritt and Mr. S. Barrett. For one brace of Cucumbers Mr. Fallows was again first with Stretford Defiance, Mr. Brundritt second, and Mr. J. Carrick third. Celery, in two classes, was shown in remarkably good condition. Mr. G. C. Jarran, Loughborough, Mr. J. Biddles, Loughborough, and Mr. R. Murray, gardener to Captain Turner, Stockport, staged the best red Celery, receiving the awards in the order named. Mr. Jarran also staged the best white Celery, Mr. J. Wilding, Walton-le-Dale, following, the third prize going to Mr. Biddles. Messrs. Biddles, J. McIntyre, Darlington, and J. Casson, gardener to E. Goodall, Esq., Altrincham, were awarded the prizes as named for Gourds, but the class was far from being a good one. Cauliflowers were exhibited in large numbers and were large and close, but in many instances of bad colour. Mr. J. Harrop was placed first, Mr. J. Wilding second, and Mr. T. Taylor, Preston, third, the two former staging Veitch's Autumn Giant. Many large coarse Cabbages were staged in the class for early white varieties. Mr. G. Summers, gardener to the Earl of Scarborough, Sandbeck Park, was awarded the first prize for small neat examples, the second prize going to Mr. Sherwin, Altrincham, and the third to Mr. J. Wilding for very coarse specimens. The best red Cabbages were staged by Mr. J. Wilding and Mr. A. J. Skinner; Mr. G. Wilkes, gardener to Mrs. Tambaci, Cheadle, following with good specimens. The best Savoy Cabbages were staged by Messrs. J. Wilding, J. Heywood, Stretford, and D. Wilson, Manchester. Early white Turnips were largely and for the season well shown. Messrs. G. Bolas, W. Boulton, Ulverston, and Messrs. Biddles were the respective prizewinners. The best yellow Turnips in another good class were staged by Messrs. Dobbie & Co., Rothesay, G. W. Skelton, Thursby, and J. Caunce, Garstang. With Altrincham Carrots Mr. J. Caunce was first, being followed by Mr. Ridsdale and Mr. G. Ashley, Irlam. In the class for Early French Horn Carrots the prizes went to examples of Nantes Horn, this proving unsatisfactory to those who staged the right kind. Messrs. J. Smith, G. Bloxham, and Mr. Foster, gardener to D. Greenham, Esq., were the prizewinners.

Peas were extensively shown, Mr. J. McIntyre securing the first prize with McLean's Best of All; the second prize going to Mr. R. Beale, Thursby, for Premier; and Mr. A. Harris, Kirby Lonsdale, followed with Telephone. In a large class of Kidney Beans Mr. Millen was placed first with White Advancer, Mr. Lumsden and Mr. J. McIntyre securing the remaining prizes. Messrs. G. Wilson, G. Wallis, Kirby Hall, and J. Woolam, gardener to Col. Blundell, Crosby Hall, were the prizewinners in a large class of Runner Beans. The best Broad Beans were staged by Mr. J. Jardine, Langholm, N.B., and was followed by Mr. G. Coulson, Didsbury; and Mr. E. H. Bradley, Sunderland. Parsnips as shown were not particularly good, Mr.

C. Smith, Cheltenham, had the best, and was followed by Messrs. J. Ridsdale and J. Wildsmith. Beet was not superior; the best roots were staged by the last-named, he being followed by Messrs. G. Summers and J. Millen. But few good Leeks were shown, the first-prize lot from Mr. H. Sutherland, Thornliebank, near Glasgow, being a long way ahead of the remaining exhibits. The prizes for Cos Lettuces were awarded to Mr. J. Caunce, Sir P. Dunscombe, and Mr. A. G. Skinner. The best Cabbage Lettuces were shown by J. G. Adams, Esq., Ashton-on-Mersey; Mr. S. T. Whitehead, Bakewell; and Mr. J. Caunce, Garstang.

There were a considerable number of Tomatoes shown in the class for twelve fruits in four varieties. The first prize was awarded to the ugliest examples imaginable, and stated to be Excelsior, Trophy, Large Red, and Orangefield. These were staged by Mr. J. Keeling, gardener to D. Ward, Esq., Sheffield. Mr. A. Jamieson secured the second prize, the third going to Mr. S. Castle, West Lynn, Norfolk, medium-size creditable examples being staged in both instances.

SPECIAL PRIZES.

Thirteen collections were staged in competition for the prizes offered by Messrs. Sutton and Sons, Reading, for twelve varieties of vegetables. Mr. Wildsmith was awarded the first prize (five guineas) for a creditable collection, consisting of Intermediate Carrots, Ne Plus Ultra Peas, Snowball Turnips, Improved Reading Onions, Suttons' Exhibition Sprouts, Schoolmaster Potatoes, Student Parsnips, all very good; and fair examples of Cole's Defiance Celery, Dwarf Erfurt Cauliflowers, Duke of Connaught Cucumbers, and Hathaway's and Excelsior Tomatoes. Mr. G. T. Miles was awarded the second prize (four guineas) with far the best collection; his Tender and Truc Cucumbers, Globe Artichokes, Walker's Exhibition Onions, Carentan Leeks, Prince Albert Marrows, Intermediate Carrots, Telephone Peas, Stamfordian Tomatoes, Carters' Incomparable Crimson Celery, and Schoolmaster Potatoes were all of good quality, but the Cauliflowers and Parsnips were poor. Mr. R. Milner, gardener to J. D. Corbett, Esq., Shrewsbury, secured the third prize (three guineas), staging among others good examples of Telegraph Peas, Snowball Turnips, Matchless Red Celery, and Beet. The fourth prize (two guineas) was awarded to Mr. D. Abbott, gardener to C. H. Firth, Esq., Sheffield.

Messrs. Dickson & Robinson offered valuable prizes for the best six heads of their Eclipse Cauliflower. The first prize in a strong competition was awarded to Mr. J. McIndoe, the second to Mr. J. Edmonds, and the third to Col. Cross. For the best six bunches of Dickson, Brown, & Tait's Queen of Tomatoes there was good competition; but the remarkable examples staged by Mr. Hunter, Lambton, were very superior to the others. The second prize was awarded to Mr. D. Wilson, and the third to Mr. W. Elphinstone, Derby, for creditable examples. There were twelve collections of vegetables staged for this firm's prizes for twelve varieties. Mr. G. Summers, Sandbeck, staged the premier collection, consisting of good Eclipse Cauliflowers, Red Valery Carrots, Bliss's Perfection Tomato, Snowball Turnips, Grove White Celery, Bassana Tripoli Onions, Lapstone Kidney Potato, Pine Apple Beet, Marvel Peas, Telegraph Cucumbers, and Heartwell Marrow Cabbages. Mr. O. Arbrell, gardener to A. J. Skinner, Esq., Cheltenham, was placed second with a collection which included good Ne Plus Ultra Peas, Eclipse Cauliflowers, mixed Tomatoes, and Incomparable Crimson Celery. The third prize was awarded to Mr. W. Iggulden for a creditable collection.

For the prizes offered by Messrs. Webb & Sons, Wordsley, Stourbridge, for six varieties of vegetables there were twelve competitors. Mr. Crump, Blenheim, easily secured the first prize with good examples of International Kidney Potatoes, Excelsior Tomatoes, Pride of the Market Peas, Carter's Long-sword Kidney Beans, and Cucumbers. Mr. R. Milner was a good second, his International Kidney Potatoes being very creditable. The third prize was awarded to Mr. G. Bloxham, gardener to Sir T. Duncombe, Brickhill Manor; the Kinver Marrow Peas, Trophy Tomatoes, and Matchless Celery in this collection being very superior.

Messrs. Dickson & Robinson filled the tables at the end of fruit tent with a great variety of well-grown vegetables. The Tomatoes, Beans, Turnips, Peas, Onions, Beet, and Cauliflowers were very good examples of the sorts catalogued by this firm. Conspicuous among the Potatoes was a heap of a distinct new variety in the way of the Hundredfold Fluke.

MISCELLANEOUS FRUIT AND VEGETABLES.

Amongst the varied exhibits not for competition Messrs. Webb and Sons, Calcot Gardens, staged a fine collection of Cob Nuts, the finest of all being one named Cannon Ball, a round and very large Nut, the other principal varieties being Webb's Prize Cob, Duke of Edinburgh, Improved Cosford Cob, remarkably fine; Kentish Cob, Spanish Fillbasket, Berkshire Early, and Marquis of Lorne. Messrs. Paul & Son, Old Nurseries, Cheshunt, exhibited a large and varied collection of kitchen and dessert Apples. The following were amongst the finest specimens—Counsellor, Wellington, Hollow Crown Pippin, Warwickshire Pippin, Forge, St. Alban's Pippin, President de la Fays, Lemon Pippin, Cheshunt Pippin, Lord Suffield, Summer Nonesuch, Bess Pool, Herefordshire Pearmain, Cellini, Small's Admirable, Golden Noble, Lord Derby, New Hawthornden, Pearson's Plate, Warner's King, Lewis's Incomparable, Kerry Pippin, Dumelow's Seedling, Poor Man's Profit, Lord Grosvenor, Mother Apple, and many others.

Messrs. James Dickson & Sons, Newton Nurseries, Chester, also staged a similar collection, but from trees about three years old. Some of the fruit was very large and fine. Messrs. J. Cheal & Sons, Crawley, Sussex, staged examples of their new Melon Shepherd's Model and Shepherd's Perfection, both large fruits, weighing 8 or 9 lbs.; a new Cucumber, Cheal's Prolific; a new dessert Apple of fine quality and a good colour called Early Snowfield, and is said to ripen in July; they also staged an assortment of other well-known varieties of Apples. Messrs. Dickson, Brown, & Tait, Manchester, contributed a good collection of fruits and vegetables; the monstrous Cucumber that was staged—Sooly Qua, 5 feet long, excited considerable attention. The collection of Grapes, Peaches, and Nectarines were good, but the vegetables were the most noticeable feature. The Potatoes were very fine, and included a very good dish of a new seedling variety called Early Ebor, a smooth rather fine-shaped Potato. Eclipse Cauliflower was shown in excellent condition, also a fine variety of curled Parsley called Dickson's Triple-curved. They also staged good examples of a small new Tomato called The Queen, much in the style of Green Gage, but a bright red colour; one bunch contained twenty-five fruits. Pot Vines fruiting, Roses, Gladioli, and Conifers were also arranged by this firm. The Liverpool Horticultural Company (John Cowan) staged an assortment of fine pot Vines from eyes this year, strong and short-jointed. Messrs. James Dickson & Sons of Chester also staged excellent pot Vines, Figs, and Conifers.

IMPLEMENTS.

The display of these was not so large as was anticipated, nevertheless a good general assortment was exhibited. The gold medal for the best boiler was awarded to Mr. Joseph Bramham for his Allerton Priory boiler. This combined saddle and tubular boiler is capable of doing much work, and is undoubtedly an excellent boiler. Many other forms of boilers were staged—for instance, Watson's Patent Wedge boiler, "The Clipper," and Ben's Patent boiler, that were described in the Royal Horticultural Society's Show. Messrs. Richardson and Co., horticultural builders, Darlington, exhibited their Hooded Tubular boiler, and were awarded a special certificate. They also exhibited their wall-protector and a general collection of houses, boilers, and valves. For a house suitable for a smoky climate they were awarded the gold medal. The house was specially built and designed for the purpose. It was span-roofed, light, and well ventilated on the most improved system, the top air being admitted through a small lantern, and when open a screen made of light copper wire places itself in the open space, thus preventing any soot from entering. The idea is rather novel. Messrs. Foster & Pearson obtained a gold medal for their greenhouse, which is a light and durable span-roofed structure, that has been previously described; they also exhibited other good houses, and their patent span-roofed frame is now in use in many gardens. Mr. R. Holiday was also awarded a gold medal for a general collection of houses, boilers, and other appliances. This exhibitor made a fine display with some of his large houses suitable for conservatories and nearly every other purpose.

Messrs. McKenzie & Moncur, Edinburgh and Glasgow, exhibited a light and strong span-roofed house suitable for a small conservatory. Messrs. Wright & Holmes, Moseley Road, Birmingham, exhibited their improved Cranston's patent house, glazed without putty. Messrs. D. Low & Sons, Edinburgh and Manchester, exhibited some very substantial houses of good workmanship and design, with boilers, valves, and many other garden implements. The assortment was large, varied, and good. Mr. Henry Inman, Stretford, Manchester, exhibited a very large collection of rustic summer-houses, chairs, garden seats, bridges, and others. The whole was a very creditable exhibit. Bailey's tube wells were in working, and also Deverill's Patent Irrigator. Messrs. Elliott, Alston, & Olney, Manchester, exhibited a very fine collection of garden seats; Mr. J. Armatage of Manchester a general assortment of vases; Messrs. Such Brothers, Milgate, Manchester, a large collection of iron garden seats, boilers, rollers, and other similar exhibits; Messrs. Mathews, of Weston-super-Mare, a large and excellent collection of garden flower pots, Orchid baskets, and other rustic articles suitable for Ferns. Messrs. Griffiths & Hughes had a stand of their fir tree oil, a valuable insecticide; Messrs. Green & Sons a collection of mowing machines; Mr. Henry Cesar had a greenhouse; Messrs. Chadborn & Coldwell exhibited their patent "Excelsior" lawn-mower and the Pall Mall lawn-edger; Messrs. Graham & Fleming, Halifax, a collection of boilers and valves; and Mr. Harlow, Macclesfield, a quantity of boilers and other heating apparatus suitable for warming dwelling-houses, &c.; Mr. C. H. Harris, Birmingham, a variety of garden seats; Messrs. Dickson and Son of Chester a number of garden implements; and Mr. Thomas Bradford, Manchester, a number of garden seats. Lastly, but not least, Mr. Bramham, 104, Dale Street, Liverpool, was the only exhibitor who contributed wirework. His display consisted of an elaborate rosery, which has been much improved since it was shown at Liverpool some time ago. Some of the medals were not granted when our reporter left the Exhibition, and we have since failed to obtain the awards.

The Exhibition was opened by Lord Derby with an appropriate speech on Wednesday, the 24th ult. His Lordship also presided at the elaborate and elegant banquet held on the evening of the opening day, and which was attended by a large number of eminent horticulturists.

We may further add that there was a department not referred to in

the preceding report—namely, the cottagers' productions, which occupied considerable space in one of the tents, the fruit and vegetables being in quality highly creditable to the exhibitors.

THE NATIONAL ROSE SOCIETY'S SHOW.

THE experiment of holding an exhibition of Roses in connection with the International Show thus late in the year met with fully as much success as could have been anticipated. In several of the principal classes the competition was fairly good, though the blooms were generally small. The chief nurserymen's class was for forty-eight single trusses, and in this Messrs. R. Mack & Son, Catterick Bridge, Yorkshire, were accorded the leading honours for an even collection of bright fresh blooms. Messrs. Paul & Son followed extremely closely, and Messrs. Cranston & Co. secured the third position with neat examples. With twenty-four triplets the same firms secured the prizes in similar order, all staging good blooms. The best twenty-four single trusses were from Mr. J. House, Eastgate Nurseries, Peterborough; the second position being accorded to Mr. J. Walker, Thame, Oxford. Twelve triplets of Teas or Noisettes were shown by Messrs. Mack, Paul & Son, and Prince of Oxford, who gained the awards in that order. In the premier collection good blooms of Madame Hippolyte Jamain, Adrienne Christophle, Maréchal Niel, and Madame Bravy were included. For twelve trusses of any Rose Messrs. Mack, Prince, and Cranston were first, second, and third with Alfred Colomb in admirable condition; while for six trusses of any variety the same firms carried off the prizes, Messrs. Cranston with Mrs. Jowitt, Mack with Marie Baumann, and Prince with Duke of Edinburgh.

The amateurs' classes were not strongly represented, but good blooms were shown by the Rev. Canon S. Reynolds Hole, Causton Manor, Newark; E. Mawley, Esq., Addiscombe, Croydon; T. B. Hall, Esq., Rock Ferry; Ercyrd Claxton, Esq., Wavertree, Liverpool; and H. Grendon Tippet, Esq., Woodham, Rock Ferry. Among the exhibits not for competition were boxes of blooms from Messrs. Cranston & Co., Rose Crimson Bedder being remarkably bright in colour. Some fine examples of Clematises were also shown by the same firm.

THE NATIONAL CARNATION AND PICOTEE SHOW.

THE National Carnation and Picotee Society (Northern Division) held their annual Show in connection with the Great International Exhibition. Considering the lateness of the season the display was very fine, and such a clear bright lot of flowers are seldom seen at the end of August. Allowing for the extraordinary attractions afforded by the International Show the Carnations came in for rather more than their share of admiration, and seemed to be especial favourites with the greater number of visitors. The Newcastle growers were in good force with an exceedingly fine lot of clean and fresh blooms; but the palm went to Mr. Robert Lord, Todmorden, who was the most successful exhibitor. In seedlings there were a few very fair flowers, but nothing to call for special attention. In named varieties some of the old sorts were shown in good character to remind one how they can sometimes be caught at a late season. The premier Carnation, Admiral Curzon, shown by Mr. Lord, was a fine flower with wonderful petals, the colour bold and well laid on; the only defect being the white, which was not of a very clear character. The premier Picotee, Thomas Williams, shown by Mr. Robert Scott, Newcastle, a light-edged red, was a perfect model of a flower; in fact the variety was notably good throughout the Show.

The following is the prize list—

CLASS A, TWELVE CARNATIONS, all dissimilar, open to all.—First, Mr. Robert Lord, Todmorden, with Lord Milton, Admiral Curzon, the premier Carnation; Mrs. Dodwell, a very fine rose flake; Raynor Johnson, Clipper, Shirley Hibberd, Earl Wilton, Fox Gardiner, Sportsman, Robert Lord, Mrs. Tones, and George. Second, Mr. Thomas Flowdy, Gateshead, with Sarah Payne, extra fine; Admiral Curzon, Sporting Lass, a fine purple flake; James Harland, William Haslam, Rose of Stapleford, James Flowdy, Rifleman, Falconbridge, very good; James Wilkinson, Eccentric Jack, and Warrior. Third, Mr. William Taylor, Middleton, with Admiral Curzon (2), Apollo (2), Annihilator, Fanny Peel, Sportsman, Lovely Ann, James Taylor, Lord Milton, Warrior, a fine flower, seldom seen so good; and Clipper. Fourth, Mr. Benjamin Simonite, Sheffield, with John Simonite, J. P. Sharp, Admiral Curzon, Graceless Tom, Esther, and seven seedlings. Fifth, Mr. John Beswick, Middleton.

CLASS B, TWELVE PICOTEEES, all dissimilar, open to all.—First, Mr. Robert Lord, with Zerlina, very fine; Minnie, Mrs. Summers, a neat sweet bloom; Thos. Williams, fine; Miss Horner, Brunette, Mrs. Allcroft, good; Ann Lord, Medina, John Smith, extra fine; Elsie Grace, and Fanny Ellen. Second prize to Mr. Thomas Flowdy, with Thomas Williams, fine; Fanny, Mrs. Dodwell, Robert Scott, Zerlina, very good; Edith D'Ombain, J. B. Bryant, Mrs. May, Minnie, Miss Wood, extra fine; Amy Robsart, and Northern Star. Third to Mr. John Beswick, with Zerlina, fine; Edith D'Ombain, Ann Lord, Linnie, Miss Harland, Daisy, Dr. Abererombie, Rosy Queen, Mrs. Summers, J. B. Bryant, Mary, and Wm. Summers. Fourth to Mr. Geo. Rudd, Undercliffe, Bradford, for Zerlina, Mrs. Allcroft, Her Majesty, Mrs. Niven, J. B. Bryant, and seven seedlings. Fifth to Mr. Benjamin Simonite, with Morna, Mrs. Allcroft, Medina, Alliance, Sylph, Miss Gorton, Ann Lord, Mary, and four seedlings.

CLASS C, TWELVE CARNATIONS, nine dissimilar.—First to Mr. Thomas Bower, Bradford, with John Keats (2), Lord Milton (2), very good; Dreadnought (2), Maid of Athens, Squire Meynell, Clipper, Falconbridge, Sybil, and Rifleman. Second to Mr. Robert Scott, Newcastle-upon-Tyne, with Mr. Harland, James Flowdy, Sarah Payne (2), very fine; Eccentric Jack (2), Rose of Stapleford, Mars, Rifleman, Dan Godfrey, Falconbridge, and Mayor of Nottingham. Third to Mr. George Rudd, with Lord Napier, Falconbridge, Lord Milton (2), John Keats, Admiral Curzon, and six seedlings. Fourth to Mr. George Thornley, Middleton, with Earl Wilton (2), Sportsman, Dr. Foster, William IV.,

Clipper, Admiral Curzon, Lord Milton, James Merryweather, and Eccentric Jack. Fifth to Mr. Thomas Mellor, Ashton-under-Lyne; and sixth to Mr. Joseph Chadwick, with a lot unnamed.

CLASS D, TWELVE PICOTEES, nine dissimilar.—First to Mr. Robert Scott, with Thos. Williams, the premier Picotee, and a most exquisite flower; Miss Wood (2), fine; J. B. Bryant, Minnie, Mary, Zerlina, Mrs. Dodwell, Northern Star, and Mrs. Summers. Third to Mr. Geo. Thornley, with John Smith, Miss Wood, Zerlina (2), Nymph, Ann Lord (2), Miss Horner (2), Brunette, Alice, and Lucy. Third, no name stated, with J. B. Bryant (2), Zerlina (2), Wm. Summers, Mary, Mrs. Summers, Beauty of Plumstead, Mrs. Allerof, Ann Lord, and two seedlings. Fourth to Mr. Thomas Bower; and fifth Mr. Thos. Mellor.

CLASS E, SIX CARNATIONS, dissimilar.—First, Mr. Edward Pohlman, Halifax, with Lord Milton, Sportsman, John Keats, Dr. Foster, Fanny Gardiner, and John Simonite, good. Second to Mr. James Whitham, Hebden Bridge, with Fanny Gardiner, James Merryweather, James Douglas, Purity, Sportsman, and Admiral Curzon. Third to Mr. James Whittaker, Royton, with Admiral Curzon, Sybil, Earl Wilton, William IV., Lovely Ann, and James Taylor. Fourth, Mr. Samuel Barlow, Stakehill, near Middleton.

CLASS F, SIX PICOTEES, all dissimilar.—First to Mr. J. Whitham for Zerlina, Fanny Ellen, Thos. Williams, good; Minnie, Alliance, and J. B. Bryant. Second to Mr. S. Barlow, with Morna, Zerlina, Ann Lord, Fanny Ellen, Dr. Epps, and Norfolk Beauty. Third to Mr. E. Pohlman, with John Smith, Thos. Williams, Zerlina, Cynthia, Alice, and Minnie. Fourth to Mr. James Whittaker.

EXTRA PRIZES FOR TWELVE SELFS, Yellow or other flowers.—First, Mr. Robert Lord, with a lot of run bizzars, that looked anything but selfs. Second, Mr. Samuel Barlow, for twelve flowers, all selfs, both lots being well grown.

CLASS G, SINGLE BLOOMS.—*Scarlet Bizzars*: First, second, third, fourth, and fifth, Mr. R. Lord, with Curzon. Sixth, Mr. S. Bower, with same. *Crimson Bizzars*: First, second, third, fourth, and fifth, Mr. R. Lord, with Lord Milton (3), Rifleman, and Unexpected respectively. Sixth, Mr. T. Bower, with Rifleman. *Pink and Purple Bizzars*: First, Mr. T. Bower, with Sarah Payne. Second, Mr. R. Lord, with Shirley Hibberd. Third, Mr. T. Bower, with Falconbridge. Fourth and fifth, Mr. R. Lord, with Albion's Pride and Eccentric Jack. Sixth, Mr. B. Simonite, with a seedling. *Scarlet Flakes*: First, Mr. Thos. Flowdy, with Wm. Harland. Second, third, fourth, and fifth, Mr. R. Lord, with Sportsman (2) and Clipper. *Rose Flakes*: First and second, Mr. R. Lord, with Lovely Ann and Mrs. Dodwell. Third, Mr. T. Bower, with John Keats. Fourth, Mr. R. Lord. Fifth, Mr. T. Bower, with the same varieties. Sixth, Mr. W. Taylor, with Apollo. *Purple Flakes*: First, second, and fifth, Mr. R. Lord, with James Douglas. Third and fourth, with Earl Wilton. Sixth, Mr. Wm. Whittaker, with Lady Peel.

PICOTEES.—*Heavy-edged Red*: First and second, Mr. R. Lord, with John Smith. Third, Mr. T. Flowdy, with J. B. Bryant. Fourth, Mr. R. Lord, with John Smith. Fifth, Mr. T. Flowdy, with J. B. Bryant. Sixth, Mr. G. Rudd, with John Smith. *Light-edged Red*: First and third, Mr. T. Flowdy, with Thomas Williams. Second, fourth, fifth, and sixth, Mr. R. Lord, with same. *Heavy-edged Purple*: First, Mr. R. Lord, with Zerlina. Second and third, Mr. J. Beswick, with same. Fourth, Mr. E. Pohlman, with Miss Summers. Fifth and sixth, Mr. J. Beswick, with same. *Light-edged Purple*: First and second, Mr. T. Flowdy, with Minnie. Third, Mr. G. Thornley, with Ann Lord. Fourth, Mr. B. Simonite, with Mary. Fifth, Mr. R. Lord, with Minnie. Sixth, Mr. J. Beswick, with Ann Lord. *Heavy-edged Rose*: First and second, Mr. R. Lord, with Miss Horner and Fanny Ellen. Third, Mr. J. Chadwick, with Miss D'Ombra. Fourth, Mr. W. Taylor, with Edith D'Ombra. Fifth, Mr. R. Lord, with Miss Horner. Sixth, Mr. G. Rudd, with Edith D'Ombra. *Light-edged Rose*: First, second, and fourth, Mr. T. Flowdy, with Miss Wood. Third, Mr. J. Beswick, with Teresa. Fifth, Mr. S. Barlow, with Unknown. Sixth, Mr. W. Taylor, with a seedling.—WILLIAM BOLTON, Warrington.

TROPÆOLUM SPECIOSUM.

UNDOUBTEDLY "D., Deal," has selected the right aspect—north—for growing this gorgeous plant in England. In Scotland it will grow anywhere, at least in the south where the rainfall is great, and perhaps in other parts also. I have seen it in Dumfriesshire rambling over shrubs and making them look like bushes of fire, and the gardener's cottage at Arkleton was, a few years ago, covered from the ground to the roof—a veritable blaze of beauty. I have never seen anything in England so brilliant as this plant is in Scotland, and attempts should certainly be made to establish it in gardens in the south. This is no easy task, as I know from experience. I have planted it many times and oft in Lincolnshire, but always failed; my successor, however, succeeded. He planted it on the north side of a mansion where there was either a leak or a stoppage in the spout above, and the ground, by the constant trickling of the water whenever it rained, was always wet. In fact it is the wettest and coolest place in the garden, and it suited the Tropæolum, for there it grew, and is probably flowering at the present time at Branston Hall. About three years ago I saw it growing and flowering freely at Holme Lacy near Hereford, and there, too, it was on the north side of a wall and in a cool and moist position. When once the plant is established it is no trouble. It will grow if it is let alone. Its fleshy roots are extremely liable to be injured when disturbed, or in transit when sent from the north. If some nurseryman could establish a number of plants in pots, like so many pots of Musk, they would no doubt sell readily, and it is quite certain if they became established in English gardens and flowered the same as they do in Scotland that the vendor would leave behind him a monument brilliant and durable.—J. W.

MATRICARIA INODORA FLORE-PLENO.—With respect to the Matricaria inodora flore-pleno being comparatively a new plant as is stated last week, I have known it growing in gardens in the neighbourhood of Prestwich more than twenty years ago. It is no doubt one of those good old plants that has long been neglected

and is now brought to light again. The name of Mitraria was, I presume, simply a misprint.—JAMES PERCIVAL.

[Yes; the name was an obvious misprint, which escaped our notice in time for correction.—ED.]

TURNIP-ROOTED BEET.

AFTER reading the notes in the Journal last year respecting the high quality of this Beet I determined to give it a trial this year. I have known the variety for years by having occasionally seen it in gardens, but in some strange manner I could never help feeling it was a mistake to grow the round black Turnip-like roots, when there were, as I thought, so many better varieties with handsome tapering roots. So much for prejudice. This year for the first time—and I have been growing Beet for thirty years—I tried the globular Egyptian, and I must now say that it is not only the earliest of all, but is the sweetest and best flavoured I ever tasted. There is scarcely a suspicion of the earthy taste that is present more or less in all the long-rooted varieties, and I hope never to be without the Egyptian Beet again. A few of the roots are pale in colour, but the great majority of them are as dark as Nutting's. My employer, I think, has a prejudice against it, the slices, he says, being too large. The quality is of little moment with him, as I believe he seldom touches this vegetable, though he likes to see it on the table. This is all the better for me; and as I am entitled to all the vegetables I require, I shall reserve the round Beet for myself, and supply "the house" with Nutting's as usual. Those who grow Beet to eat should try this sweet and excellent variety, for in quality it is the best of all.—AN OLD HAND.

MR. BRUCE FINDLAY.

ON the occasion of the publication of the report of the Jubilee Exhibition of the Manchester Royal Botanical Society, the portrait of the highly skilled and successful Curator and Secretary of that Society (see fig. 33, page 197) will not be inappropriate, and we feel sure it will be acceptable to our readers.

We extract the following particulars relative to Mr. Findlay, subject to some slight corrections, from a Manchester paper—

"In all Manchester there is not a steward of the public welfare to whom the community is more indebted, or to whom we should be more grateful, than the excellent Curator of the Botanical Gardens at Old Trafford, to which during the last dozen years or so the shilling visitors have amounted to probably fully 800,000. The gardens are purely private property. They are not, like our magnificent public parks, open to any who like to enter. This makes it so much the more agreeable to remark that the gates are open so often, and at so low a rate of charge for admission. If we are not very profoundly mistaken it is to Mr. Findlay that such of the Manchester people as do not subscribe or call themselves 'proprietors' owe the chance now so often afforded of contemplating and enjoying what they have to offer.

"The original proposal to establish botanical gardens in Manchester, so we verify by reference to the copy of the celebrated old *Manchester Iris* at the Hulme branch of the Free Library, appeared in 1822. There were then very few establishments of the kind in England, but there was one at Liverpool, and it was in order to be on a par with the last-named that the proposal for a Manchester garden was issued. But the project was mooted before its time. Nobody cared to take it up, and not until about 1829 was it started anew. A Botanical and Horticultural Society was then established. Dr. Dalton went all round the suburbs of the town testing the comparative cleanliness of the leaves of the trees with a cambric handkerchief, so as to be sure of the purest atmosphere, and this being found at Old Trafford, the existing site was chosen. In 1831, exactly fifty years ago, the gardens were ready, and about midsummer that year there was a grand procession and an opening exhibition. The men employed in the grounds wore a rather fancy uniform, designed, it would appear, after the legends of classical Arcadia. With the original Curators we need not here concern ourselves. They were most estimable men—Mr. Findlay's immediate predecessor, the late Mr. Campbell, was one of the most genial gardeners that ever lived. Mr. Findlay himself came upon the scene in 1858. He was born at Streatham in Surrey. His father was a Scotchman, but as regards his horticultural education he is certainly a Londoner. Some of his earliest experience, we believe, was gained in Rollisson's nurseries at Tooting. When he received the appointment he has now held with so much credit for twenty-three years he was only twenty-three years of age; he has thus spent just half of his life in his present position. Flower shows, when Mr. Findlay came to Manchester, were for the select few, the connoisseurs in plants, the fashionable and the wealthy. Taking up with his accustomed promptitude the capital idea set forth in the Great International Show at South Kensington in 1866, he determined that with proper support Manchester, through his personal effort, should be the first to follow suit. In Whitsun week 1867 began, accordingly, those splendid flower festivals we now

look forward to as an integral part of the year's enjoyment. Mr. Findlay has been instrumental in promoting public enjoyment in a rational manner to a degree it would be difficult to over-estimate. That he does his work in the calm and business-like way that best commends a man to his friends is proved by the way in which they constantly and uniformly rally round him. There is never any 'uncertain sound' in the voice with which he speaks. He says what he means, and means what he says. There is never any disguise, and he has no idea of what half-heartedness is. He is renowned among his brother gardeners for his sincerity and courtesy. He is a friend to every man who loves gardens and gardening, and is always ready to lend a helping hand; and, best of all, he does not know what it is to have an opponent or to hear unkind words."

Mr. Pettigrew also pays the following deserved tribute to his friend—

"Mr. Findlay is a gentleman of calm demeanour, sound judgment, extensive knowledge, great professional attainments, and never fails to accomplish what he undertakes. From the time he came to Manchester he has gradually risen in public esteem and confidence—both rich and poor respect him. Amongst friends and acquaintances he is very social, and an excellent conversationalist. His society is coveted and sought by the wealthy around him. He is interested in the progress of horticulture, willingly writes and reads papers to help in the formation of small societies of gardeners, is always anxious and willing to help respectable gardeners seeking situations, and is very frequently applied to for gardeners to fill vacant places. He is enthusiastic in his profession, and in all respects is an excellent man."

Such testimony as the above leaves us little to say. Mr. Findlay's last triumph has been his greatest, and we trust he will live to achieve similar results under more favourable circumstances. A man of such energy will not be checked in his course by a rainy day or rainy week; he will produce success at last, and, as Mr. Pettigrew says, will "accomplish what he undertakes." We will only add that we hope he will accomplish it soon, as such earnest labour deserves its reward.

STANDARD CURRANTS.

If standard Roses are going out of fashion standard Currants ought to come in, for they are not only beautiful objects grown at intervals by the sides of the walks in kitchen gardens, but are extremely profitable and valuable for late use. The birds always leave them until the last, and when they do attack them the head of each tree can be easily enveloped with hexagon netting, and the fruit is then safe. These standards do not usually grow so luxuriantly as bushes and they bear prodigiously, the fruit hanging like swarms of bees. True, they need stakes to support them, and they are worthy of them—quite as worthy of such aids as Roses or Raspberries are. If standard Red and White Currants were generally grown they would not only add to the attractiveness of most gardens, but, what is more, the period of the fruit supply would be considerably lengthened, for it is certain that the fruit keeps better on standards than on bushes. Standard Currants are easily formed, but it is a question of time to produce fine heads; these, however, when once produced continue fruitful for many years. Select straight cuttings, and do not stop them until they are 3 feet high, but all the lower buds must be scrupulously removed or suckers will be troublesome. Secure the leading growths to stakes and pinch the side shoots, and in due time fruitful miniature trees will be produced that will be both useful and ornamental. The best variety for this mode of culture is—RABY CASTLE.

ROSE RÊVE D'OR.

AMONGST Noisette Roses Rêve d'Or occupies a prominent position. It is a most desirable variety with its rich golden flowers, which are of moderate size and full. It is a vigorous grower and a good climbing Rose, and when planted out in suitable soil soon covers a good space.

I have recently been looking over some back numbers of the Journal, and was struck with the lamentable tale many cultivators have recorded against that most beautiful of all Noisette Roses, Maréchal Niel. When we read of the difficulties growers have to contend with in trying to cultivate this Rose, and failure results after the utmost care and good management, it is almost sufficient to cause them to abandon further experiments. I would not advise such a course to be pursued, as I have found in several instances brilliant success result after repeated failures in trying to grow this Rose. But where Rose blooms are required and must be produced cultivators cannot afford to wait year after year, and the result of their labours be a failure, therefore I advise a trial of Rêve d'Or. The blooms of a rich orange yellow will be produced with certainty, and the plant will grow and flourish luxuriantly.

It will not produce shoots quite so long as the Maréchal, and in consequence will take a little longer time to cover a certain space.

Like Gloire de Dijon the Rose under notice is rather inclined to branch from its shoots instead of producing leaders branchless for perhaps 20 feet. If the end of the young leading shoot once turns down and remains in that position for a time a number of side shoots are certain to be produced. I have, however, had growths some 12 feet long without a side shoot on plants in pots. When strong shoots are left their entire length at pruning time they will flower as freely along their entire length as the Maréchal or "Old Glory."

I do not trouble myself as to what particular stock is best suited for this Rose, as I am certain it cannot grow better nor bloom more profusely upon any stock than upon its own roots. I have had failures enough with growing Noisette Roses on stocks, and long since devoted my attention to growing such varieties as I require on their own roots. Success has been certain, and the production of blooms considerably larger.

Cuttings root readily at any season of the year when half-ripened wood is employed, and this variety strikes as freely as any Rose I am acquainted with if only a judicious system is practised in carrying out the operation. To be brief, I shall say, Follow out the details given on striking Roses some short time ago in the Journal, and success will be sure. If rooted at once splendid plants can be produced by the end of next year that will carry on an average twenty blooms each if the plants are kept in pots. To accomplish this they must be repotted as often as they require it until they are placed in 10-inch pots. The plants should be grown upright or close under the glass during the summer, and not crowded too thickly together if a good quantity of blooms are expected. When the growth is made and ripened it can be trained round stakes placed round the side of the pot, and will break from nearly every joint and produce a flower. This Rose will force very well, and if ripened early can be had in bloom by the end of February or early the following month.

Those who have not grown Rêve d'Or will, I am sure, if they give it a fair trial, be delighted with it.—SCIENTIA.

STRATAGEM PEA.

HAVING grown this new Pea for two summers, I have great pleasure in answering "CLERICUS" (page 98) respecting its merits. It grows some 3 or 3½ feet high, and it is particularly suitable where sticks are dear or where the situation is exposed. The pods and peas are truly magnificent, quite green, the latter of a delicious flavour. The constitution of the plant is excellent, and not subject to mildew. I can promise that whoever grows this Pea well will not be disappointed. While I am on the subject of Peas I may mention that the plan followed here is to make the first sowing of Peas on or about the 1st of February, and every ten days till the 1st of July. This plan enables us to gather Peas every day for four months.—J. RUST, *Eridge Castle*.

LACHENALIAS.

FOR spring decoration no dwarf-growing plants are more brilliant than these, and few are more useful. They are valuable for associating with Lilies, Cyclamens, Spiræas, Hyacinths, &c., from all of which they are distinct both in form and colour; yet Lachenalias are absent from many gardens, and in some others where they are seen they are not satisfactory, because they were not potted until the Hyacinths and other bulbs were obtained. The right time for potting Lachenalias is in August, but bulbs potted now—at once, will make brilliant masses of scarlet and yellow next April. They are of most easy culture. I place seven bulbs in a 5-inch pot, using a light, rich, gritty compost, and plunge the pots in cocoa-nut fibre in a frame. Growth soon commences, and the pots are removed to a shelf in the greenhouse, where they remain until they flower. We have no plants more useful than these in the spring, and none more certain to grow and flower freely. I have read of their being grown in hanging baskets, and can quite understand how beautiful they must be; however, such baskets are not wanted here, but a few dozen pots of these elegant and brightly coloured flowers could not be dispensed with. The variety we grow is named L. tricolor grandiflora.—A CONSERVATORY FOREMAN.

POTATOES FROM SINGLE EYES. — The following facts were communicated to me a day or two ago by my friend Mr. Cole of Tower House, Bexley Heath, and as I think they may be of interest to the readers of the *Journal of Horticulture* I send them to you. "This season, by way of an experiment, I took three Potatoes—Early Rose—weighing ¼ lb. each, and cut them into thirty sets with a

single eye to each piece; the sets (averaging in size not larger than a walnut) were planted the last week in April. They all came up well, and grew vigorously. I lifted the crop the second week in August. The $\frac{3}{4}$ lb. of seed has produced 33 lbs. weight of handsome tubers, being uniform in size and shape, and all perfectly sound. Despite the dryness of the season there were remarkably few small tubers, and no chats, twenty-four of the largest weighing 16 lbs.—READER.

MUSHROOMS IN PASTURES.

FROM notes and replies that occasionally appear in the Journal, a somewhat widespread disposition would appear to exist to establish Mushrooms in the open air. This is not easily accomplished at any time, and in some soils it is impossible. I have made many experiments, nearly all of which proved failures; still I succeeded in one instance, and this not because of any special management, but because the weather happened to be favourable at the time the spawn was inserted, and the soil was suitable for the growth of the Mushrooms. Towards the end of June is about the time when the temperature of the soil is suitable for the spread of the spawn, but should drenching rains follow on the one hand, or extreme drought on the other, there will be no results. Again, in some soils, if a few Mushrooms follow the insertion of the spawn, they prove the first and the last crop. This is the case in very wet pastures where the soil is stagnant during the winter.

I am satisfied that, on dry soils at any rate, salting the land is favourable for Mushrooms. I am well acquainted with a small farm in a large agricultural district on which Mushrooms grow freely both in the pasture and arable land. I have seen many bushels gathered from amongst Potatoes and Turnips, in some places Mushrooms springing up as thick as they could stand for yards together. It is on this farm only that Mushrooms grow. The soil of the surrounding fields is of precisely the same nature—medium hazel loam well drained; in fact, first-rate Potato and Barley land, growing also good crops of Wheat. The only difference in the management of the land is that on the farm where the Mushrooms grow the farmer has been in the habit of sowing 2 cwt. of salt per acre for a number of years, so that the land is thus impregnated with salt. I once inserted some lumps of spawn in a pasture on this farm, and the same day another portion in an adjoining field that had not been salted. The weather being favourable Mushrooms followed in both instances, but they were both much finer and more numerous in the field that had been regularly salted than in the other. The district is, however, a dry one, and similar results might not follow in a wet locality.

Mr. Abbey, I think, has advised that salt be mixed with water for applying to Mushroom beds. It would be well if he would allude to this subject more prominently, and state his reasons for the practice and the quantity of salt he recommends.

In inserting lumps of spawn in pastures the condition of the soil is of far more importance than any mere date in the calendar. September is as good a time as June, provided the ground is neither too wet nor too dry for the spread of the mycelium and the growth of the fungus.—A GARDENER AND BAILIFF.

PELARGONIUM PRINCESSE STEPHANIE.

A PRETTY and novel Zonal Pelargonium was sent out last May under the above name by MM. Pynaert van Geert of Ghent. It is especially remarkable for its dwarfness of habit, the plants when fully grown rarely exceeding 5 inches in height, and, being very compact and free in flowering, it is well adapted for culture in pots or for the margins of flower beds, for which purpose it is especially recommended by its introducers. It is totally distinct, both in foliage and flowers, from any other form of Zonal Pelargonium grown in England, and well merits attention.

The flowers are very double, but the petals are not crowded and are of a bright rose colour, lighter in the centre, being borne in trusses of moderate size. These, however, are produced in such numbers that the plants appear to be literally balls of flowers, and lines or margins of such would undoubtedly have a beautiful effect in the flower garden. The annexed woodcut first appeared in the "Revue de l'Horticulture Belge," where, in describing the plant and referring to its floriferousness, it is stated that a small

specimen with only three branches had nine trusses. We have seen plants in M. Pynaert van Geert's nursery, and can recommend the variety for a trial in English gardens.

EARLY PEACHES.

EARLY BEATRICE appears to have taken the leading position among Mr. Rivers' seedlings, and is now more largely grown than any other early variety. Early Albert, Early Louise, and Early Rivers do not appear to have become popular, although the last named especially is an excellent Peach; the other two do not appear to be wanted, as ripening too near Early Beatrice. The variety last named is planted in nearly all collections where Peaches are required at the earliest possible moment. It is a good grower, great bearer, and free setter, and although the fruits are small in all probability the crop that a tree will carry would equal in weight the produce from the same space of most other varieties; yet notwithstanding its size tells against, and it is grown simply because no other variety that has yet been widely cultivated will ripen so early, but not because of its merits as a fruit.

Early Rivers is larger and a little later, affording a good succession, and the fruit is mostly of excellent quality, yet it is not seen in one Peach house in ten. This is a little surprising, as it is a decidedly early Peach, and as such is valuable. Its pale colour is no doubt an obstacle to its extended culture, it inheriting this



Fig. 35.—Pelargonium Princesse Stephanie.

character from its parent the Early Silver, which in turn was raised from the white Nectarine. Those who do not object to a pale skin should give Early Rivers a trial.

Hale's Early ripens about the same time as the preceding, or perhaps a little later. It is of American origin. It is not larger than Early Rivers, if as large, neither is it better if as good in quality; but it is better in colour, its crimson-tinted cheek marked with dark streaks giving it a warm and rich appearance that is acceptable on the dessert table. It is of very good and not unfrequently of excellent quality, and decidedly ranks as the best second early variety. In not a few gardens it is relied on for the earliest fruit, Early Beatrice being dispensed with. Early Ascot follows, and is a very useful variety.

How far these varieties will maintain their position when the American variety Early Alexander becomes better known remains to be proved. I am informed by an American friend that this is clearly the finest and most valuable early Peach in cultivation, and on that account is being grown largely in the southern States. "Early Amsden is," he says, "almost if not identical with it; and if the two varieties are offered in England choose the former, and do not buy the latter." Early Alexander I have seen but not tasted. Can any readers of these notes give information respecting it, both in regard to its period of ripening as compared with Early Beatrice, its quality, and its colour when ripe? If it is as

good in appearance and quality as Hale's Early, and as early as Early Beatriee, it will be a decided acquisition.

To all who are erecting Peach houses and those who intend planting in the ensuing summer it is important to have the latest reliable information on the subject of these notes; indeed, they have been suggested by a gentleman who is seeking information, as he desires to have the best early Peaches he can obtain, and wishes to avoid planting trees that in two or three years' time he may have to dig up again.—T. S.



THE Secretary of the Tavistock Horticultural Society asks if any of our readers can suggest a solution of a difficulty—namely, the practice of some competitors entering for certain prizes, and then at the last moment not putting in an appearance for all the things entered. There are no entrance fees, and there are almost insuperable objections to making any, as the Society is supported very liberally by the noblemen and gentlemen of the district.

— COLOURED PLATES OF FLOWERS are so numerous now-a-days, that it is only when one of striking excellence appears that it merits notice. Such an one was issued last week with the *Gardeners' Chronicle*, representing truthfully and artistically the three beautiful *Odontoglossums* *vexillarium*, *Alexandrae*, and *cirrhosum*. We congratulate our contemporary and their artist on this very chaste and beautiful work of art, which so many Orchid admirers will be glad to possess.

— A NEW MILTONIA of singularly chaste appearance has expanded in Mr. B. S. Williams' collection during the present week. Its labellum is pure white, with three or four short, bold, and clearly defined stripes of purplish magenta radiating from the centre of the flower. This variety, which has not yet been named, is much prized in the nursery.

— IN the same establishment, noticeable by its very free growth and fine flowers, is *IXORA PILGRIMI*, which promises to rank amongst the most useful for decorative purposes in this fine genus, especially as it succeeds admirably in a temperature of 10° to 15° lower than is suitable for *I. coccinea*.

— WE have received from Messrs. G. Cooling & Sons, Bath, two plants of their NEW DWARF KIDNEY BEAN, NE PLUS ULTRA, which they sent out this season. The plants are extremely productive, of dwarf habit, and have large and fine pods. The vendors recommend it especially as a forcing kind, as it proves to be as productive indoors as out, and is very early. It is certainly a very fine Bean, but how far it is distinct from Fulmer's can only be determined by a fair trial of the two varieties. Have any of our readers tried them together, and if so with what results?

— AMONG the numerous hardy plants exhibited by Mr. Riches at South Kensington last week, two very pretty forms were noteworthy—namely, *CASTILLEJA INDIVISA* AND *DRACOCEPHALUM RUPRECHTII*. The former is a bright and attractive ally of the *Scrophularias*, with spikes of scarlet flowers and bracts; and the other is *Labiata*, with soft yet bright purple flowers that are produced very freely, clothing the upper part of the stems. They may be both grown upon a rockery that has been suitably prepared.

— "ONE of the most interesting aquatic plants in flower at the present time," writes "A. W.," is *ORONTIUM AQUATICUM*. The graceful drooping foliage, from which rise charming umbels of flowers, renders it a very suitable plant for shallow waters."

— A GOOD cultivator writes as follows relative to the MADRESFIELD COURT GRAPE—"This fine Grape does not now get so bad a character for cracking, as its culture is getting better understood. Formerly one-half of the berries were lost through cracking, now but several instances have within the last fortnight come under my observation where, thanks to a dry buoyant atmosphere coupled with ample ventilation, scarcely a berry has to be cut out."

— MR. W. R. GLEAVE sends the following RECEIPT FOR MAKING COLTSFOOT WINE—"Take three gallons of water and one quart of Coltsfoot flowers, boil them well for half an hour, then strain through a sieve; add 9 lbs. of good moist sugar, boil again for half an hour, then remove to a cool place; when lukewarm add seven Oranges pared and sliced, two Lemons sliced, and a little yeast. Let it stand for about a day, then put in a cask for two or three months, then draw off into bottles." Perhaps someone else will be kind enough to give the other receipt that has been asked for Horehound beer.

— IN reply to "S. E." Mr. Peach recommends the following method of preparing WHITEWASH FOR GLASS—"The whiting should be mixed with old milk instead of water, and have a third part of fresh slaked lime mixed with it, and to every gallon add one pint of strong paste or starch. If this mixture is put on in a dry day, especially if there is a little sun to harden it, it will stand much wet weather and frost before it is washed off. The quantity of whiting used must depend on the amount of shade which is required and the size of the glass in the house." Another correspondent states that—"If 'S. E.' mixes some boiled glue with whiting it will withstand several months of rain and frost, and can easily be removed by hot water and a flannel."

— THE COLLECTION OF POTATOES GROWN AT CHISWICK this year was examined by the Fruit and Vegetable Committee on August 19th, P. Crowley, Esq., in the chair; the following varieties being highly approved for cropping qualities and handsome appearance—*Lye's Prolific*, *Garnett's Seedling*, *The Druid*, No. 1 (Fenn), No. 3 (Fenn), *Avalanche*, *Alderman*, No. 6 (Fenn), *Surrey Gatepost*, *Beauty of Kent*, *Farren's No. 1*, *Foster's Seedling*, *Standard* (Fenn), *Lord Mayor*, *American Seedling*, *Bedfont Prolific*, *Matchless*, *White Emperor*, *Criterion*, *Manhattan*, No. 5 (Fenn), *Mr. Bresee*, *Alpha*, *Triumph*; No. 30, *Rand's Seedling* (Bliss). On being submitted to the test of cooking the following were awarded first-class certificates—*Garnett's Seedling*, a large flat white kidney; *Standard* (Fenn), a medium-sized round white; *Lord Mayor* (Dean), a very handsome rough-skinned white; *Foster's Seedling*, a large white round rough; No. 5 (Fenn), a large, very handsome, pale red kidney, resembling *Mr. Bresee*, remarkably fine in quality; and *Matchless* (Bliss), a half round, very handsome, pale pink American variety.

— WE are informed that the following GARDENING APPOINTMENTS have been recently made—Mr. Joseph Turner, late foreman at Poulett Lodge, Twickenham, has been appointed gardener to R. H. Coombe, Esq., *Pierrepoint*, Farnham, Surrey; and Mr. Thomas Gardiner takes charge of the gardens of P. B. Davis Cooke, Esq., *Owston Park*, Doncaster.

DENDROBIUM SPLENDIDISSIMUM.

HYBRID Orchids are now by no means scarce, although confined to a few genera, and many beautiful forms have been added to our collections within the last ten years, not a few having originated in Messrs. Veitch's nursery. One of the best of these that appears destined to obtain a high position in the esteem of Orchid growers is *Dendrobium splendidissimum*, of the habit and flowers of which the woodcut (fig. 34, p. 203) gives a faithful representation. Though evidently the result of a cross between two species, the exact parentage is not certainly known. *D. heterocarpum* is certainly one, being the seed-bearing plant, but whether *D. nobile*

or *D. macrophyllum* was the other cannot be determined, as both crosses were made about the same time. The probability is, however, in favour of the *D. macrophyllum* parentage, as will readily be perceived on careful examination of the plant when flowering.

The habit of the plant is compact, and it flowers very freely, being remarkably handsome when in its best condition. The sepals and petals are creamy white tipped with purple, the lip being pale yellow, and the centre an intensely rich crimson hue. The contrast between the light and dark shades of colour is most pleasing, and renders the plant remarkably attractive.

Some plants in the Chelsea Nursery were extremely handsome early in the present season, and one of these is portrayed in the engraving. It was growing in one of the shallow pans that have been so frequently mentioned, and with others was thriving grandly in one of the warm compartments of the Orchid range.

CRYSTAL PALACE FRUIT SHOW.

ON Monday and Tuesday last the annual Fruit Show was held at Sydenham, proving satisfactory and successful in the number of exhibits and the quality of the fruit shown. Black Grapes and Peaches were admirably represented, some fruits of the latter being of great size and beautifully ripened.

The chief interest, however, usually centres in the collections, and these were very creditable to their exhibitors. Mr. Goodaere, gardener to Earl Harrington, Elvaston Castle, Derby, won chief honours for twelve dishes with Muscat of Alexandria and Black Hamburg Grapes, good bunches of each, especially the latter, which were remarkably well coloured. *Violette Hâtive* Nectarines, Moorpark Apricots, and a Luscious-and-Melting Melon were, with handsome Smooth Cayenne and Queen Pines, the chief features in the collection. Mr. Roberts, gardener to the Baroness Rothschild, Gunnersbury, Acton, was a good second, his Queen and Smooth Cayenne Pines, Golden Perfection Melon, and Downton Nectarines being very fine. Mr. Mann, gardener to Mrs. R. Hornsby, St. Vincent's, Grantham, held the third position with well-grown examples of *Violette Hâtive* Nectarine, Royal George Peaches, and a Smooth Cayenne Pine among others. The best collection of eight dishes was contributed by Mr. Oelee, gardener to the Marchioness of Lothian, Blickling Hall, Norfolk, who was followed by Mr. G. T. Miles, Wycombe Abbey Gardens, and Mr. C. J. Goldsmith, Sandhills, Bletchingley.

The most important Grape class was that for ten kinds, and Mr. Goodaere was again the successful competitor with good bunches of Foster's Seedling, Madresfield Court, and Black Alicante, and fair examples of Venn's Muscat. Canon Hall Muscat, Muscat of Alexandria, Lady Downe's, Gros Colman, Golden Queen, and Black Hamburg. Messrs. Lane & Son, Berkhamstead, also had a fine collection, very close in merit to the preceding. Classes were also provided for Black Hamburg, Muscat of Alexandria, Gros Colman, Madresfield Court, and Alicante, in most of which the competition was keen and the fruit of good quality. The most numerous entries were, however, in the class for five kinds, two bunches of each, ten collections being staged. Mr. W. Nash, gardener to the Duke of Beaufort, Badminton, Chippenham, was adjudged chief honours for well-ripened bunches of good size of the following varieties—Muscat of Alexandria, Black Hamburg, Black Alicante, Muscat Hamburg, and Lady Downe's. Mr. Miles was second, having fine bunches of Gros Maroc and Trebbiano; Mr. Woodbridge, gardener to the Duke of Northumberland, Syon House, being third with Golden Champion, Madresfield Court, Alnwick Seedling, Foster's Seedling, and Muscat of Alexandria of fair quality.

Peaches and Nectarines were extremely fine in the classes for three dishes of distinct kinds. Mr. Goodaere's Noblesse, Royal George, and Bellegarde Peaches, Elrue, Pitmaston Orange, and Lord Napier Nectarines, were grand in size and colour. Melons, Plums, and Pine Apples, were also numerous, especially the two former, the quality being quite up to the average.

Cut flowers, bouquets, and table decorations were well represented, some very tasteful arrangements being contributed in the last-named class.

SCHIZANTHUSES.

A SHORT time ago a correspondent directed attention to the beauty of these plants when grown in pots for the greenhouse, the plants, if I remember rightly, being raised from seed sown in the spring. Let me advise him and all others to grow some plants in pots from autumn-sown seed, and in early summer of next year they will with good cultivation have something worth looking at. My plants are now an inch high and sturdy. They are in 4-inch pots, about five plants in each pot, in a frame with the Mignonette, the lights being removed whenever the weather is

fine. There they will remain until November, when they will be placed close to the glass in a very light greenhouse. In the spring they will be repotted, and in May and June they will be fine bushes, covered with their gay butterfly-like flowers. Seed may still be sown, sprinkling it thinly in small pots, and thinning the plants out quickly. Overcrowding them in a young state is fatal to success. The pots should be plunged in ashes and receive the same treatment as Mignonette, than which, however, they are much easier to manage, and equally certain to be admired when they are in good condition and flowering freely. The varieties I grow are *S. retusus* and *S. papilionaceus*, both of which are extremely gay and very beautiful. If kept sturdy the plants do not need stopping, as generously grown they branch naturally.—J. D.

PLANTING HOLLIES AND RHODODENDRONS IN AUGUST.

MR. BARDNEY has stated that the month of August is the best time of the whole year for removing Hollies, for he says that "when large specimens have to be replanted there can be no doubt that the present month is preferable." From many years' experience in lifting trees and shrubs, I am far from being prejudiced against any month of the year provided climatical influences are favourable, and should not be afraid at any time or season to transplant evergreen shrubs that had been previously prepared, as by judicious attention with the waterpot, &c., in dry weather, sufficient assistance can be given until new rootlets are formed, except when piercing east or north-east winds are blowing for days or sometimes weeks together, and this frequently happens during March; then watering is very little use, as the winds dry up the sap after the manner of a fire.

My object in writing is not so much to advocate any particular season for replanting, as that too frequently has to be regulated by circumstances, but to call attention to the great assistance rendered to large specimens by digging a trench around them and preparing them beforehand for the trial they are about to undergo, as well as to illustrate as clearly as I am able the difference between specimens purchased from well-managed nurseries and those growing in the ordinary manner in gardens. The latter have possibly been left undisturbed for several years, the roots being sometimes intermixed with those of Elms and other deciduous forest trees. In such a case there is great risk in removing large specimens and transplanting them without any former preparation, whether it be August or any other month. In well-established nursery grounds where specimens of all kinds are being constantly sold and kept for sale, each shrub is dug around at least once in every two years and some rich light soil placed around the damaged roots, into which new white rootlets readily penetrate, so that in a little time there is a mass of small feeders which can be secured with sufficient soil to form a compact firm ball, and in this manner trees and shrubs are frequently removed long distances and transplanted.

It is frequently the case that in laying out new gardens, especially of limited extent, the shrubs, through too close or injudicious planting, in a few years form a crowded mass, or it may be that some valuable variety has been planted too close to a walk—a point to be always avoided—and requires removing. In cases of this kind, and they are numerous, I strongly advise that soon after their first growths have become tolerably firm a trench be dug around the shrubs, completely severing the roots both around and underneath, and filling in the trench with leaf soil or other light material. This will check any further growth, and in time they can be lifted even in the poorest of situations with good balls without scarcely any risk compared with specimens that are lifted under the same without preparation.

Localities and circumstances must, however, always be considered in connection with this work. I am writing from experience gained on poor sandy and gravelly soil in Surrey. Mr. Bardney may have the benefit of better soil. But even in this poor soil it is surprising how shrubs will grow when the ground has been deeply broken up, mixing the better soil with the poorer. Rainfall, too, exerts a great influence on the work in question. In this locality the average yearly rainfall during the past ten years has only been 23 inches. Possibly with Mr. Bardney at Liverpool it has been twice that amount; if so, the extra rain will have been of great benefit to his early removals.

I thoroughly endorse all that your correspondent has said in favour of *Ilex Hodginsii*. This variety has the grandest foliage of all Hollies. I would also advocate the planting of weeping Hollies as single specimens. There is a variegated kind called Perry's Weeping, and a green variety somewhat similar to the common form, both of which are admirably adapted for single specimens.

On the subject of Rhododendrons I must differ from Mr. Bardney. October I consider is the best month of the year for lifting and transplanting them, as in most localities in August the flower buds are not developed. Rhododendrons are well adapted for lifting. I have seen them lifted with balls as large as three or four men could lift, but it would be impossible to carry them far with such masses of soil attached; therefore the paring and shaving they often receive to render them portable would be detrimental to their young growths if the lifting were done in August and the weather subsequently set in hot and dry, which is frequently the case during September and October. The year of 1881 possibly may be an exception to this, as the spring and summer months have mostly been very dry and hot.

Rhododendrons make their new growths after the blooming period at the end of May or during June, but this year we have but very little growth owing to the drought, and they require time to develop their bloom buds before being lifted.—J. W. MOORMAN.

LOBELIAS FOR THE CONSERVATORY.

I MADE a great "hit" last year with these plants in the easiest possible manner, and I intend trying the simple plan again. Early in September I cut the flowers of a number of rather small plants in the border with the object of securing some healthy cuttings. I did secure them. In October the plants were so tempting by their fresh healthy growths that I took up three dozen of them and potted them in small 48-size pots. These plants were placed in a well-sheltered brick pit, and there they remained all the winter, at one time being covered up with straw and snow for a month. Only six of these plants died, and six others were injured, twenty-four of them being in fine condition in the spring. When they had fairly commenced growth they were shifted into 7-inch pots, and in the months of May and June they were masses of flowers 18 inches in diameter, and, as placed at intervals round the margin of the conservatory, had a most pleasing appearance and were admired by all who saw them. The varieties were *pumila magnifica* and *Paxtoni*. They were stood in saucers of water and were well supplied with liquid manure. The result was so satisfactory, and the means employed so simple, that I mention the circumstance, as the record may be useful to others.—EXPERIENTIA DOCET.

HYDRANGEA PANICULATA GRANDIFLORA.

Is this grand hardy shrub as extensively cultivated as it ought to be? It is certainly one of the most valuable additions that have been made to our shrubberies of recent years. Its huge heads of flowers are at the present time most imposing, and arrest the attention of all who see them. Its hardiness, too, has been proved during the last two winters, which it has passed through unscathed in the southern counties; but in a garden in a cold district in the north it was injured, and as it looked rather unsightly was cut down by the gardener under the impression that he would secure stronger growth from the base. He has secured such growth, and also, what he did not expect, grander heads than the plant ever produced before. This he regards as a lesson, and he is so convinced of its value that he intends cutting the plant down again, as he is convinced this is the best method of managing it, or, in other words, growing it as an herbaceous plant.

There are now many plants of this distinct and fine *Hydrangea* grown in different gardens, and it would be well if some of them could be cut down by way of experiment. There can be little to lose and may be much to gain, for certainly the heads of flowers alluded to are extraordinarily fine. Grown on the cutting-down system, and in richer soil than is usually found in shrubbery borders, it is fair to suppose that the heads would be still larger, and large beds of this plant with a background of shrubs would form a striking feature at this period of the year in any garden.

Those who have not yet planted this *Hydrangea* in their shrubbery borders can scarcely err by obtaining it, as it is undoubtedly one of the most effective summer-flowering shrubs in cultivation.—A TRAVELLER.

SINGLE DAHLIAS.—The value and beauty of these Dahlias is admirably shown in the Liverpool Botanic Gardens, where they are freely employed in large oblong and oval beds and long narrow ribbon borders. The charmingly graceful *D. glabrata* is especially noteworthy, for, though its flowers are small, they are produced in such large numbers and possess such a soft pleasing mauve tint that they are very attractive. *D. coccinea*, *D. lutea*, and *D. Paragon* are more brightly coloured forms that can be employed with the others to great advantage. The display also proves how admirably these Dahlias are adapted for town gardens,

the gardens referred to being situated in a part of the city where the smoke is a great impediment to growth of many plants and flowers. Those named with the white variety, the *Queen*, which is now so fine in Mr. Ware's nursery at Tottenham, should be included in all collections.—L.



MANCHESTER BEE AND HONEY SHOW.

THIS formed a section of the Great International Exhibition which took place at Old Trafford last week. It appears that the Committee of Management arranged to have no competition in the bee tent, and requested Mr. Pettigrew of Bowdon to provide an attractive and interesting display of bees and honey from his own garden. He consented to do so, believing that an exhibition of this kind would go far to popularise bee-keeping. At Manchester it is believed that monotony is very undesirable in exhibitions of all kinds, and that the element of novelty is necessary to attract the masses of the people. Mr. Pettigrew, on undertaking the work entrusted to him, resolved to make this Show a novel one by introducing a new form of observatory hives, and to exhibit legends on black boards done in honeycomb by bees, and sets of icicles of honeycomb under glass shades. The state of his health prevented him from doing all he intended and desired to do. The icicles were not done. However, the Exhibition was evidently a great success. The honey tent was crowded with visitors every day, and no one could enter it without hearing expressions of wonder and gratification from all classes of visitors. Amongst the exhibits on the tables were eleven glasses of elegant shape with lids, well filled. Their weight ticketed on them ranged between 16 and 21 lbs. each. They appeared to be model supers, very pleasing to the eye; a few smaller glass supers seen at one corner of the table were well filled. There were three straw supers, one marked 30 lbs., and two 10 lbs. each, not quite finished, and two wood supers 12 lbs. each. A stock hive with one of these supers half filled with combs and bees. A stock hive with a large super on it, half filled with white combs and black bees, stood at the far end of the tent to attract attention and draw the people away from more interesting exhibits placed nearer the door.

The observatory hives, four in number, were of cheap and simple construction, with bees and glass on one side only of each super. The queen of each super had a white woolly cotton thread tied round her waist, which enabled the spectators to see her at a glance, and watch her movements as she wandered amongst the community. But the most conspicuous and novel exhibits of the bee tent were two black boards 6 feet 6 inches long, and 2 feet broad, with two legends on them done in honeycomb—viz., "God Save the Queen" and "Industrial Exhibition." The letters being 5 inches long or thereabouts were easily read, and seemed to delight all classes of visitors. Both boards were labelled "Our First Efforts in A B C."

Honey of different kinds and of the highest quality in glass dishes were on the tables, beside bone spoons, for visitors to taste; and honey in glass bottles—4 lbs. in each—was there for sale. The demand for run honey was extraordinary, and all was speedily sold at 1s. 4d. per lb. Three bottles of crude honey were on the tables for the purpose of showing, in the exhibitor's opinion, that honey proper and fit for use on the breakfast table is not found in field or forest, but is made by bees at home from the crude materials found in flowers.

Messrs. Stansfield, who now possess and occupy the nursery at Sale lately in the possession of Mr. Pettigrew, sent a large and beautiful assortment of hardy Ferns, which were placed amongst the bee and honey exhibits, and which contributed largely to the general effect of the whole.

[We propose in our next issue to publish the portrait of Mr. Pettigrew, accompanied with a sketch of his gardening and apian career.—ED.]

TRADE CATALOGUES RECEIVED.

- Francis and Arthur Dickson & Sons, 106, Eastgate Street, Chester.—*List of Dutch Flower Roots.*
- Barr & Sugden, 12 and 13, King Street, Covent Garden.—*Catalogue of Bulbs.*
- Strike & Hawkins, 62, High Street, Stockton-on-Tees.—*Catalogue of Bulbs.*
- J. Carter & Co., High Holborn.—*Catalogue of Bulbs (Illustrated).*

E. G. Henderson & Son, Maida Vale, London.—*Catalogue of Bulbs.*
 Thos. S. Ware, Hale Farm, Tottenham, London.—*Catalogue of Bulbs and Hardy Perennials (Illustrated).*
 George Templeton, Prestwick, N.B.—*Catalogue of Selected Roses.*
 Edmund Philip Dixon, Hull.—*Catalogue of Bulbs.*
 Osborn & Sons, Fulham.—*Catalogue of Bulbs.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Early Nectarine (H. A. R.).—Lord Napier is the earliest variety in cultivation; the fruit is also very fine and of excellent quality. It will be suitable for both the objects you have in view. One of the best of the older Nectarines for forcing is the Elruge; but if you only want one variety, and that the earliest, choose the former, and order your trees early, good examples not being easy to obtain late in the season.

Brood of Caterpillars (W. Thomas).—Those received are examples of the common species, *Pygaera Bucephala*, also called the buff-tip moth; about a fourth of the size they would reach at maturity. Though very partial to Elm and Lime, they are often discovered on various fruit trees, and they appear indeed to be rather promiscuous feeders. The conspicuous moths may be detected laying their eggs in July.

Reine Marie Henriette Rose (W. R. G.).—We have no doubt this Rose will succeed out of doors in your district, assuming the soil and aspect are suitable. The only doubt we have of the position you name being suitable is that it may be too hot and dry, and in all probability the plant would grow more freely in a cooler aspect.

The Phylloxera (Philodendron).—The insect attacks the roots and leaves of the Vine and not the bark in the manner you suppose. You will find illustrations of a leaf and roots when attacked by this pest in our issue of August 19th, 1880, also notes on the history of the insect. If you do not possess this number it can be had in return for 3½d. in postage stamps sent to the publisher.

Prize Gooseberries (C. Freeman).—We are unable to give you the information you seek; but if you write to Mr. Charles Leicester, nurseryman, Macclesfield, and enclose a stamped directed envelope for a reply, he will no doubt be able to answer your inquiry.

Report of Show (H. E. Monk).—We have waited some time before noticing your letter in case the report to which you allude came to hand. We have not received anything from you in addition to the letter which is referred to in another column.

Select Greenhouse Adiantums (O. O.).—In addition to those you name you might grow the following—*A. affine*, *A. concinnum latum* (in a warm corner), *A. hispidulum*, *A. reniforme*, *A. pubescens*, and any varieties of *A. Capillus-Veneris*. *Adiantum cardiolobatum* is a stove Fern, and is described in the "Synopsis Filicum" of Hooker and Baker under the name of *A. polyphyllum*, a native of South America. It was introduced nearly twenty years ago.

Pruning Budded Briars (F. B.).—The Briar growths in which the buds are inserted are best left unshortened until the spring. If they are shortened now the buds often start into growth, and as that growth cannot be firm and matured before winter it is in extreme danger of being killed by the frost. It is better for the Rose buds to remain dormant through the winter, when they produce strong growths in the spring, and often afford fine exhibition blooms.

Strawberries and Vines (A. Sankey).—It is impossible for us to recommend dealers in plants or garden appliances of any kind, as if we were to advise you to apply to any particular nurseryman we should cast an unmerited slight on twenty others who could supply you as well, and this, as you will perceive, would be obviously unfair. Write to any of those nurserymen who advertise in our columns, and if they do not possess every variety you want they will probably obtain it for you. All nurserymen of standing keep true stocks of Vines and strawberries, otherwise they would soon lose their reputation.

Polyanthuses (P. A.).—We are not aware that a cross similar to the one you name has been effected, at least we have not seen any plants that have indicated the parentage of such an alliance. We would not, however, say such a cross is impossible, as we remember a saying of a celebrated statesman that "nothing is so certain as the unexpected." Certainly take care of the plants and hope for the best, but do not be disappointed if they do not equal your expectations.

Sawdust for Rhododendrons (A. B., Perthshire).—The article to which you refer may be found on page 446, the issue of June 2nd of the present year; but it was subsequently stated on page 495 that "when Mr. Cuthbert Johnson made his Rhododendron bed he used fresh sawdust mixed in equal proportions with common garden soil, and to this he added a good dressing of bone superphosphate, but we are unable to state in what proportions."

Arranging Pipes (Eighteen-years Subscriber).—Your proposed mode of arrangement will certainly impede the circulation; indeed if the dip is not well above the return opening in the boiler, say 18 inches, you will have no circulation at all, and even then if you have to fire very hard the water may be forced out of the supply cistern. It is always undesirable to have sudden dips in flow pipes, and they should not be adopted except on the advice of a competent hot-water engineer who has examined the apparatus and the whole of the connections.

Seedling Petunia (J. Ribbons).—In consequence of the flowers having been placed in the box loosely—that is, without any packing to render it firm

and immoveable, it had been so shaken in transit that the outer petals by coming in contact with the sides of the box were quite crushed and spoiled. So far as we can see the flower appears to be very compact, the colours good, and the edges of the petals frilled to a rather unusual extent. Judging by the much-injured flower before us, we think the variety is a promising one and worthy of preservation. The value of Petunias, however, depends greatly on the habits of the plants and their free-flowering character.

Vines in Stove (J. E., Leves).—By all means retain the Vine, the growth of which will enter a cooler house. It may start a little earlier on account of its stem being in the stove, but not, we think, so early as to prevent your maintaining the growth. We presume you will not permit any growths to extend from that portion of the stem in the warm compartment of the structure. If the Vine does not answer your expectations you can remove it afterwards, but we should certainly give it a trial. A saddle boiler 2 feet long will be large enough for heating the pipes you name, or a conical boiler of the same height, to be fed with coke, would answer the same purpose; the question is simply one of fuel.

Keeping Grapes (S. F.).—When Grapes are kept in water a good portion of the bunch-bearing laterals are severed from the Vine and the ends inserted in bottles of water, such as ordinary wine bottles, a little charcoal being placed in each bottle to keep the water pure. The bottles are fixed in a slanting position in a fruit room or other suitable place, so that the Grapes hang clear of them, and a steady temperature is maintained between 40° and 45°. The room in which they are placed should be kept dark or nearly so, much light being disadvantageous to the keeping of the fruit.

Dahlia Blooms Imperfect (Reader).—Early blooms often come faulty, and they should be removed. Some varieties are also more liable than others to produce imperfect flowers, yet by selecting round and smooth buds good flowers can generally be secured. Superfluous growths should be removed from the plants, and also a portion of the flower buds from the growths remaining, and then by supplying the plants with liquid manure if they need it you may expect some good flowers if you have good varieties. Soil that will grow Chrysanthemums well will also grow Sparmannias, and soil that will grow Fuchsias will be suitable for Eupatoriums.

Grapes.—A correspondent has sent us some Grapes placed so loosely in a tin box that they arrived completely crushed, and the juice from them had reconverted the letter accompanying them into its original pulp. They were white Grapes, and this is all we can say about them. Unless ripe fruit and flowers are packed so as to be immoveable whilst travelling, they never arrive in anything like the condition they were when sent off, and the senders necessarily fail in their object. (R. O., Aberdeen).—The Grapes sent were far from being ripe, and it is impossible to name them with certainty in their present condition. Further, it is desirable that a fair sample of the foliage accompany the fruit for the purpose of identification. The white Grape appears to be a Muscat, and the other resembles Madresfield Court in appearance, but the fruit being quite sour deprives us of an important test in determining the name with accuracy.

Hardy Azaleas (R. C. D.).—We have seen hardy Azaleas flourishing admirably in soil that did not contain any peat. Unless the soil of your garden contains much lime, or is thin with a dry rocky subsoil, we have no doubt the plants will flourish if you add liberally leaf soil or vegetable matter of any kind, including cocoa-nut fibre refuse or sawdust. If the soil is heavy you cannot add too much vegetable matter, and it will be well also to mulch the surface with material of the same nature or much-decayed manure, and the roots must not be injured by digging among the plants. The mulching is particularly essential during the summer, and in addition to it copious supplies of water in dry weather will be very advantageous; the roots of those plants being very fine, almost hair-like, soon suffer by a deficiency of moisture.

Peach Tree Unsatisfactory (W. T.).—Without having more particulars of the condition of your tree it is difficult to answer your letter satisfactorily. The falling of the fruit may result from various causes—namely, overcrowded growth in summer, and consequently immature wood, red spider extracting the juices of the tree, too dry soil, or too close an atmosphere. If you are certain that the management has been correct in all these respects we advise you to lift the roots and place them in fresh loam. The lifting may be done as soon as the buds are prominent, syringing the foliage and shading it slightly if needful to maintain its freshness for inducing fresh roots at once. Some people we know have advised that Peach trees cannot be safely lifted until the foliage has fallen, but this only indicates that they have not had experience in the matter. We shall shortly publish notes on the culture of greenhouse Rhododendrons that will be of service to you.

Vines in Pasture (J. B.).—We are pleased to learn that you have profited so well by our instructions. We have numbers of correspondents from whom we receive similarly gratifying testimony of the utility of our pages. We have seen excellent crops of Grapes when the roots of the Vines have been turfed over, the soil of course having been suitable. Trench the soil, but not so deeply as to bring up much of the sour subsoil, and add bones and wood ashes liberally, also drain the site if it is wet. If you could leave the soil exposed for a week or two and turned up as roughly as possible it would be an advantage. Take the turves off as thick as possible and make the soil firm, or the animals will injure the roots. You can give copious supplies of liquid manure in the summer. The method you propose is an experiment, yet one well worth trying, and we shall be glad to learn the results of it.

Names of Fruits (Ramalho).—The variations in character of the specimens you have sent are so great that it is not surprising different names have been given when individual specimens have been submitted for identification. Not one of those before us is identical in all respects with Early Margaret, yet they show more of the characters of that Apple than any other. Soils and positions exert a great influence on fruit. We think it is the variety we have named, and had the colour been deeper we should have had no doubt about it. (Sussex).—It is the Amire Joannet, and is known in Sussex and some other counties as the Harvest Pear.

Names of Plants (Mac).—The Hieracium to which you allude is certainly *H. boreale*, and the one in flower appears to be *H. sylvaticum*. The other two plants are *Atriplex patula* and *Chenopodium album*. (A. H. T.).—The shrub appears to be a *Staphylea*, possibly *S. pinnata*. (Winchester).—If you send us a specimen securely packed in a small box we will endeavour to name your plant; the leaf and flowers simply enclosed in a letter were crushed beyond identification. (J. G.).—A small flower of *Pancratium fragrans*. (St. Asaph).—1, *Areca lutescens*; 2, *Nephrolepis pectinata*; 3, *Davallia elegans dissecta*; 4, a variety of *Gymnogramma chrysophylla*. (W. H. L.).—If your plant is a perennial it is *Linaria purpurea*, but if an annual *Linaria hybrida*; 2, *Lycium barbarum*, Willow-leaved Box Thorn, a valuable plant for covering naked walls,

arbours, &c., making shoots 5 or 6 feet long in a season. Cuttings strike freely at any time of the year. 3, *Rubus odoratus*, Flowering Bramble or Barren Raspberry, a very suitable shrub for planting in backgrounds and woods, flowering freely in late summer, but seldom indeed producing fruit, hence one of the English names. (*Anxious*).—*Physalis Alkekengi*. (*Young Gardener*).—*Bartsia odontites*. (*Reader*).—*Limnanthes grandiflorus*, a hardy annual, suitable for sowing at the present time for flowering in the spring. (*G. P.*).—*Hedychium Gardnerianum*.



POULTRY AND PIGEON CHRONICLE.

THE ROYAL COMMISSION ON AGRICULTURE.

(Continued from page 190.)

AS we have taken up this subject with the view of advising the home farmer by the evidence of eminent and practical men as given in the report of this Commission, as well as from other sources, we shall continue to refer to those practices and systems of cropping and stocking which are most likely to yield a good profit, and to notice also what changes can be made with advantage in many of the ordinary operations in agriculture.

In the future, and under the effect of low prices for corn upon the hill farms in some cases, where railway stations are near, and towns contiguous, instead of merely depending upon breeding flocks of sheep and the growth of cereals, &c., as formerly, it will be advisable to crop the land to some extent with vegetable produce, such as Cabbage of different sorts, so as to maintain a constant supply to be used as food for stock or be sold as food for the people. Potatoes also may be largely grown with advantage, because on the dry hill land they are not likely to suffer from disease, and especially when they are produced by artificial manures only, and using only tubers for seed of the latest propagated sorts which are known to have hitherto avoided the disease, especially the seed which is obtained from Scotland or the northern counties of England; they will then be almost certain to turn out profitably, except in the recurrence of seasons like 1879. The land will then be well prepared for Barley, which crop, together with the Clover also in succession, will both succeed better than after roots fed off by sheep, and if the Clover succeeds well it is the very best preparation for the following Wheat crop.

We must again ask the home farmer to consider that he is not in the position of a tenant farmer, who is frequently clogged with unreasonable restrictions of a lease; therefore he has every opportunity to avail himself of any specialities both in stocking and cropping, for on such farms in the future sheep will still be kept, but probably in less numbers. They may then be all bred and fattened upon the farm, instead of being kept as breeding animals in only stock condition. Stocks of the purest breeds, whether of Downs or Longwools, may be kept for the rearing of rams for sale, a matter when conducted with care and intelligence frequently proves highly advantageous; when, however, the animals are bred only for sale at the fairs we suggest that cross-bred animals are sure to attract customers, it being known that all the Down breeds bring an increased number of lambs when crossed with either the horned or long-woolled stock. Some of these farms contain strong soils in the vales and also irrigated meadows, in which case Shorthorn or other well-bred cattle may be reared and kept with advantage, both for milking and fattening purposes.

We will now call attention to what may be done on the vale farms in various counties as shown in evidence before the Commission, in order to meet the difficulties arising from agricultural

depression. These farms usually consist of mixed soils, such as strong loams, also sandy and gravelly land. In the enclosed districts these farms are generally found to vary in size from 100 to 300 acres, and when situated within a reasonable distance of towns or railway stations must in the future, if profitably conducted, be expected to undergo great changes in the mode of cropping. Although many of them have been proved capable of yielding valuable crops of grain, pulse, roots, &c., yet changes to some extent will be necessary, for we find that other productions besides Mangold and Swedes will be grown as a substitute, especially some of those usually cultivated by the market gardener, and which may often be sold as food for man instead of cattle. These consist principally—subject, however, to any local demand—of Potatoes, Cabbages of sorts, Broccoli, Carrots, Parsnips, Turnips, and Onions. Nor do we find that it is necessary, as is often supposed by the market gardeners, to use large quantities of town or stable manure. If the land contains a sufficiency of chalk or lime the artificial fertilisers, such as guano, nitrate of soda, bone dust, superphosphate, &c., are sure to answer, for we know when genuine that these contain all the elements of first-class manure without the bulk and costly carriage of town or stable dung. We know of instances in which both Cabbages and Broccoli have been frequently sold into the towns at a considerable distance for delivery which paid over £20 per acre above all expenses, and grown entirely in ordinary field culture and by artificial manure only; besides which the stumps of Broccoli have been passed through Gardner's Turnip-cutter, and being mixed with meal have been given to fattening bullocks, which have improved upon them equally well as they had previously done upon root crops. The crops of vegetables best adapted for growth on the farm according to soil and climate are Potatoes, Cabbages, red Carrots, Parsnips, and Broccoli. All of these can be eaten by cattle if the price of either should be too low for selling off the farm. The great and important point seems to be to have some of these always ready when the necessities of the people require them. Early Broccoli sold very high up to Christmas last year; late sorts were, however, much injured by the severe frost and snow, still this fact served to raise the value of late Savoy Cabbages.

The cultivation of fruit may with great advantage be extended in certain districts, especially after the question of extraordinary tithe charges are arranged, more particularly Strawberries, Raspberries, Currants, and Gooseberries. There need be no limit to their growth, in consequence of the demand from jam factories in London, Liverpool, Manchester, Glasgow, and other large towns. Some of these factories make 15 tons daily, and it is calculated that at least 400 tons are made daily throughout the fruit season, including all parts of the kingdom. The Board of Trade returns show that the raw fruit imported into this country in 1876 amounted to 9,372,779 bushels, valued at £1,218,625. Why should we not grow, as far as our climate will allow us, a large portion of the fruits required in the future?

WORK ON THE HOME FARM.

Horse Labour.—This will at all intervals of fine weather, when the straw of the corn is dry, be employed in the draught of the reaping or mowing machine. Whether the crop is tied at the time of cutting or not, carting may proceed simultaneously to the stack, barns, or threshing machine advantageously if the straw is dry and free from green Clover or weeds. When the horses cannot be employed in harvest work, yard or town dung may be drawn out for Wheat on to the Clover or Saintfoin leas to be spread immediately, in order that successive rains may settle the dung close to the land, and that the richness of the manure may be washed into the ground with regularity; besides this, when the land comes to be ploughed and pressed the dung is buried under the furrow more easily and effectually. Land also after green crops or Peas intended for Wheat may now be ploughed and worked down in order to vegetate weed seeds, and thus destroy them when ridge-ploughing. If, however, the soil is foul with couch the land should either be rafter-ploughed or only clean-ploughed 3 inches deep, so that when the scarifier is set to work crossways it may move all the ground and comb out the couch grass and weeds. If the land is light and dry Howard's self-lifting drag will do the work as well or better than Coleman's scarifier, and certainly with much less horse power. Whenever the land is dry enough horse-hoeing the Turnips must be done, and if too thick in the lines the hoe may be run across the rows if the hand-hoes cannot be obtained or busy with other work. A great breadth of land seeded to Clover and grasses has unfortunately failed in plant owing to the extreme drought which prevailed in the spring and summer months. It is well, therefore, to sow Trifolium and Italian Rye Grass seed wherever vacancies occur, and be harrowed in with several tines of the iron harrows, but finishing off by using the heavy roller. The early and late winter Vetches may now be both sown before the seeding of Wheat and the tillage preparation requisite is commenced. Stubble Turnips may still be sown, for although they will not give much bulb, yet when the plants are left thick on the land, and

occasionally dragged or harrowed in fine weather, they will make up very useful food in the spring when throwing up a seed stem, and when fed off by sheep eating cake a capital preparation is made for a crop of Mangold, as every portion of roots or stems not consumed serve to manure the land when ploughed under and decayed.

Manual Labour will as yet be engaged in harvest operations in nearly every district in the kingdom more or less; at other times it will be required in hoeing late root crops, the women assisting in singling the plants. Dung-spreading and filling manure into carts will also engage some of the men, except in the case of using the new farm implement for spreading the manure at the time of laying out. As this implement is attached to the dung cart the laying-out and spreading is done at one operation. This can be recommended, especially on farms of considerable extent, and in those districts where labour is scarce and dear. This brings us into contact with the labour question, which is one of great significance, and which if we cannot control we must endeavour to utilise as far as possible. We hear great complaints of the quantity and quality of the work done, especially in the southern and eastern parts of the kingdom; and in comparing the amount of wages given in various districts, we find those in the northern counties much higher than in other districts, and probably in the future farmers may discover that it is in consequence of the low wages paid, with but little piecework, that induces the best men to migrate into other districts or go into towns for employment. In the interest of gentlemen having home farms these are serious matters for future consideration, and may well induce them to maintain a sufficiency of cottages on the farm, so that a sufficient number of men and lads may always be available.

POULTRY AND PIGEONS

THE POULTRY OF THE FARM.*

It must be satisfactory to everyone who recognises the value of poultry-keeping as a branch of national industry to know that the Royal Agricultural Society of England is sufficiently alive to its importance to publish a pamphlet on the subject. The author of this pamphlet now before us is the Rev. W. G. Pope, an old fancier of the old English Dorking, and therefore well qualified for his task. Mr. Pope not inaptly prefaces his essay with some remarks upon the peculiarity of the days as regards agriculture in which we live, and observes, "Such a competition is going on between us and the foreigner that all our resources must be looked into carefully, or the weakest will soon go to the wall. Our energies must be employed to prevent the loss of anything either worth keeping or capable of conversion into something useful and valuable; and so the stray corns on a farm and the scraps from a house are to be duly utilised by poultry-keeping." Another point upon which he lightly touches is one which from experience we know to be a really important one—viz., that the poultry yard may be "a school for the youth, wherein he may acquire habits of regularity, or carry on such a cultivation of the eye as may enable it to take in readily the condition, points, and requirements of "the live stock of the farm." Such it has often been to our knowledge, and many a breeder of prize poultry in younger and poorer days has by degrees become a lover and successful cultivator of shorthorns and other pedigree stock. In coming to the more practical part of his subject—viz., advice as to the selection of a breed, Mr. Pope divides the possible requirements into four headings: 1, Eggs; 2, Chickens; 3, Chickens and Eggs; 4, Appearance.

1, He properly dismisses "mongrels" as unsatisfactory. For the production of eggs he recommends Minorcas, Blue Andalusians, Leghorns, and Hamburgs. We quite endorse his recommendations, though there is nothing novel in them, for they are those of every good poultry book. 2, For the production of chickens, Dorkings pure or Dorkings crossed with either Game or Brahmas are recommended. We have repeatedly in these pages suggested the same crosses. Mr. Pope is well known as a stickler for the white foot in the Dorking, and naturally insists upon it here. 3, For the production of both eggs and chickens the Brahma-Dorking cross is suggested, and pure Plymouth Rocks. 4, "On the point of appearance" Mr. Pope justly observes, "I will only say that it is a pity to sacrifice our best table varieties, whilst so many beautiful breeds afford a chance of indulging the fancy." "Having decided on our breed of fowls, we put ourselves in the hands of some breeder of good repute, from whom we obtain at a moderate price well-bred, but not exhibition birds, likely, however, to breed really good chickens."

* *The Poultry of the Farm.* By the Rev. W. G. POPE, Godmanstone Rectory, Dorchester. London: Royal Agricultural Society of England. 1881.

The advice which follows on the general management of poultry is very good in its way, though we must confess that most of it seems culled from books and articles, and might, we fancy, have been put together in a rather more methodical and forcible way. If we might make a suggestion to so august a body as the Royal Agricultural Society it would be that they should publish cheap leaflets on such subjects as "eggs" and "chickens," with some reliable statistics and practical advice showing the loss which the importation of eggs and poultry annually entail upon the country, and methods by which part of the sum annually paid for such foreign produce might remain in English pockets. Hence, then, we are inclined to differ a little from Mr. Pope, as when he says "perches should be broad and flat enough for the fowls to roost comfortably upon them." After much observation we have come to the conclusion that fowls do best on perches that they can clasp, neither broad nor flat. These are some illustrations of simple coops, and the author says, "The old-fashioned coop with a slanting roof to shoot off the wet, and with strong upright bars in front, answers every purpose." We do not think it sufficiently answers the purpose of keeping wet out, and prefer a coop of our own with a slanting weather board in front, which makes a great difference in the state of things inside during a period of bad weather. We are also told "it is well to have a close front to shut up securely by night." Close fronts are most undesirable; only those can know the evil of them who occasionally get up early and open their own coops; the wonder is that chickens can exist—healthy they cannot be—in coops so closed up. The fronts should only reach to about 4 inches from the top; good ventilation is absolutely necessary for health. The observations on diseases are decidedly good, and the directions given for operating upon chickens suffering from gapes sound practical. "A common pipe, stable bucket, a cloth and a smoker, are all that are necessary, with tobacco. Place the chickens in the bucket, cover them up, pass in the stem of the pipe, blow in the fumes till the sufferers are heard falling about, then turn them out at once. Repeat in two days. We use boxes and bellows, so that women may operate!"

The remarks on Ducks, Geese, Turkeys, and Guinea Fowls are really too brief to be of much practical use, and we cannot but regret that the author gives no hint of the great advisability of causing poultry to migrate over a farm in moveable houses both for their good and that of the land. We have candidly pointed out what we think errors or omissions in the little work; there is much that is good and useful in it, and we hail its publication as a step in the right direction.—C.

OUR LETTER BOX.

Fattening Fowls (M. D.).—No operation connected with the poultry yard requires greater attention and experience than fattening fowls in coops. Oatmeal and barley meal alternately, mixed with milk, and occasionally with a little dripping, is good food. The feeding troughs, which must be kept constantly scoured, should be placed before the birds at regular intervals, and when they have eaten sufficient it is better to remove them, placing a little gravel within reach of the coop to assist digestion.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1881.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
August.			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
			Inches.	deg.			deg.	deg.	deg.	deg.		deg.	In.
Sun.	21	29.765	59.4	53.7	S.E.	59.0	65.4	51.1	104.2	59.4	0.500
Mon.	22	29.868	59.7	55.6	W.	58.0	70.3	45.6	123.3	41.0	0.010
Tues.	23	29.750	63.7	59.3	N.E.	58.7	70.7	54.7	101.0	50.3	0.438
Wed.	24	29.649	59.7	54.9	W.	59.0	66.3	53.7	104.3	52.3	0.096
Thurs.	25	29.748	59.0	57.3	S.W.	58.4	63.0	50.8	74.4	45.4	0.352
Friday	26	29.424	62.7	56.8	W.	58.8	69.1	57.4	118.2	53.7	0.047
Satur.	27	29.718	59.1	53.6	N.W.	58.5	66.0	47.2	122.3	42.3	—
Means.		29.703	60.5	55.9		58.6	67.3	51.5	103.8	47.9	1.443

REMARKS.

21st.—Fair, but dull morning; rain at 0.45 P.M., and heavy showers during afternoon; fair but damp evening.
 22nd.—Fine bright morning; afternoon overcast, with sprinkle of rain; evening fine.
 23rd.—Morning fine; heavy rain in afternoon; dull gloomy evening.
 24th.—Shower in forenoon, thunder 1.5 P.M. to 1.25 P.M.; rest of day fine, bright, and breezy.
 25th.—Dull and gloomy; rain throughout.
 26th.—Heavy showers, with fine bright intervals.
 27th.—Fine, bright, pleasant day.
 Temperature near the average, but rainfall greatly in excess. —G. J. SYMONS.



8th	TH	Thame Horticultural Show.
9th	F	
10th	S	
11th	SUN	13TH SUNDAY AFTER TRINITY.
12th	M	
13th	TU	Royal Horticultural Society—Fruit and Floral Committees at
14th	W	[11 A.M.

THE PROPAGATION OF CONIFERS.

THE propagation of Conifers scarcely belongs to the ordinary routine work of the practical gardener, and many in consequence never trouble about it. This apathy may be sufficient to satisfy a certain class, but with the intelligent gardener and horticulturist the case is very different. He not only tries to grasp all the information possible on any subject pertaining to gardening, but is anxious to obtain a knowledge of how nursery stock is raised. Unfortunately many know nothing about this work, which is rarely if ever treated upon fully in any of the gardening periodicals, and young gardeners are at a loss for information on the subject. To obtain a knowledge of Conifers and their propagation I had to sacrifice the more pleasant work of a private garden for the laborious duties of a nursery before my wish was achieved.

Before passing to the subject of these notes I must say that young gardeners are frequently too anxious when they are in a nursery to get out again, as if there was nothing to learn there. This is a great mistake, and they should seize every opportunity of extending their knowledge of nursery work whenever a chance presents itself.

At no period of the year is the propagation both of hardy flowering shrubs and Conifers carried on in nurseries with greater rapidity than from the present time onwards. The majority of Conifers are propagated by means of cuttings and grafting, many Pines excepted, and a few common varieties of Cupressus, which are readily raised from seed. The system adopted where the work is carried out on a large scale entails much labour. Narrow beds are formed about 2 feet wide, with a row of bricks placed edgewise on each side of the bed, leaving the tops of the bricks just above the soil. Handlights or small glazed boxes about the same width, and about 3 feet 6 inches in length, are in readiness before the cuttings are inserted. A heap of coarse river or red sand is placed at hand, and a good proportion is mixed in the soil, the surface being covered about half an inch in depth, after which it is ready for the cuttings. These, when the wood is fairly ripened, are frequently taken from the plants intended for sale, and others from stock plants kept in borders for the purpose. Some care is necessary in taking them so that the plants be not disfigured. The portions intended for cuttings should be so taken that when dressed each will have a heel. It is necessary that the cut be cleanly done with a sharp knife. The cuttings should be made clean for about an inch of the stem near the base, and should be from 2 to 4 inches in length,

but the length matters little provided a good heel is left and the wood is in a proper state of ripeness. This mode of making the cuttings applies with equal force to all the Cupressus, Thuias, Retinosporas, and many others, but such kinds as Cryptomeria elegans, Retinospora ericoides and others equally free strike readily without a heel.

The cuttings are inserted as thickly as possible under the handlights on the prepared border, making the soil firm around them. A good watering is then given and the handlights placed over them. These miniature frames are generally arranged in rows, leaving about 2 inches between each bed to allow room for the frames to be removed as occasion may require. Little trouble is necessary afterwards, only giving shade if the sun proves very hot for a time after the cuttings are inserted. It is scarcely necessary to again lift the lights before the early spring, as the cuttings seldom need water before then. Sufficient will soak in round the handlights during wet weather, and keep the soil moist during the winter. The cuttings should be kept as close as possible until they are well callused, which will be the case in spring, as if air is given in their early stages many of the cuttings may damp off. During winter the only attention that is needed is to cover the frames with mats or other protecting material in severe weather. It is better if they can be so covered as to exclude all frost, but this is not absolutely necessary. I have seen the soil frozen hard for a long time and little or no injury has resulted therefrom.

Another course of propagation can be effected by placing the cuttings in pots in the Conifer house, which is generally kept at a temperature of 40° to 45° during the winter. This system is practised to a large extent because smaller cuttings can be employed, which is often convenient with new and choice varieties. The pots employed are about 8 inches in diameter; they should be half filled with drainage and the remaining portion with sandy soil, covering the surface with sand. The house best adapted to the propagation of Conifers is a span-roofed structure with a walk down the centre and a bed on each side. The beds should be covered with lights so as to convert them into a frame in which to place the cuttings. It is usual to give a slight bottom heat to these beds, which is of the utmost value in propagating many Conifers, especially those that are grafted. The cuttings inserted in pots are at once plunged into the side beds half their depth amongst cocoa-nut fibre. Considerable attention is needed when propagating Conifers in heat, much more so than when they are placed outside. They require dewing nearly every morning with the syringe, especially when first placed in the pots. If the roof of the house is not well shaded the frames in which the cuttings are placed must be shaded as soon as the sun shines upon them. When in these frames they are generally kept close during the day, and the lights lifted at night. They are, however, liable to damp off in considerable numbers, and every particle of decayed matter must be promptly removed. No doubt the better system is to keep them close for a time without opening the frame except to give water, and this will be seldom required if the soil is well soaked at first.

The cuttings, as a rule, are a long time before they are callused, but when they once attain that stage there is but little fear that they will afterwards be lost. In the spring when those in pots have commenced rooting they are removed to frames. In cold severe weather a little warmth should at

first be given, and the frames kept very close until the plants can be gradually hardened. It will be understood that those in pots will be rooted first, and ready for potting singly into 2 or 3-inch pots about the month of May. Those under handlights require a little different treatment in spring. As soon as the sun has power the small frames are shaded, and during showery weather the lights are removed. If this can be carried out once a week, or at short intervals, the cuttings improve considerably. If dry weather sets in the young plants must be well supplied with water. As the season advances a little air must be given daily on favourable occasions, as the roots are generally produced when growth commences. It is surprising what a time some of the varieties take to form roots, and often the season is far advanced before this is accomplished. Some are ready for potting off during the month of June—such, for instance, as *Cryptomeria elegans*, which roots quickly. *Retinospora ericoides* is even freer in this respect, while *Thuiopsis borealis* and *T. b. compacta* are a very long time before they are rooted, and are often left the second season. As a rule when they are well rooted the different varieties are potted off singly, and any cuttings that are not rooted are placed thickly together in 8-inch pots, and remain in them in cold frames through the following winter. After the plants are potted they are placed in frames and kept close for a time until they commence rooting again. They are then turned out and stood closely together in narrow beds, and cocoa-nut fibre refuse is placed amongst the pots and about an inch in depth over the rims. The plants may have to stand in this position through the winter, but in the majority of cases the strongest are planted out, and only the weakest plants and those potted late are kept and wintered in pots as described.—W. BARDNEY.

(To be continued.)

FANCY PANSIES.

SINCE my notes on Fancy Pansies were written I have been unfortunate with my stock of plants. The hot weather we had during the latter part of July was very favourable for the fly, and my stock has been sadly injured. In order to insure a supply of cuttings, therefore, I have taken off the shoots which are infested with the fly, and the little shoots at the base of the plants will soon be strong enough for the purpose. As Pansies everywhere are much infested with the well-known enemy to Pansies—the red fly—it may be of advantage to note here the remedy I am trying. Softsoap is dissolved in water, using half a pound of soap to two gallons of water, and the plants are watered through a fine rose. As we are having very showery weather in this locality it is necessary to apply it several times a week, as the rain soon washes off the solution.

It must be borne in mind that if a fine display of blooms is required a fresh stock of Fancy Pansies must be propagated every year. The most suitable cuttings are those taken from the base of the plant; by this is meant the fresh shoots which spring up round all roots of Pansies at this season of the year. The leading stems which have flowered may be struck, but the flowers from them next season would be worthless compared with plants raised from the small offsets, which as yet have not flowered. If it is not convenient to winter the stock in a frame the cuttings should be taken at once, and they will then be well established by winter. If the plants are not producing a sufficient quantity of fresh shoots I remove a few of the leading stems, and in a very short time I have an abundance of cuttings.

Of late years I have propagated them in the following manner. Among the new growth at this time of the year I shake a little finely sifted soil, which encourages the formation of roots, and I have rooted offsets to plant either in the open border or in frames. About the end of September the frames are prepared, a mixture of good loam with a liberal quantity of well-decayed manure and a little sand being the compost used. The cuttings are planted about 4 inches apart, and for a few days the frames are kept closed and shaded. During the winter as much air as possible is given in mild weather, as from experience it has been found that this is the best method of keeping down insect pests. In the case of plants which are to be wintered outside, a border is chosen which is protected either by a wall or hedge, but every care is taken that the plants will not be injured by excessive wet from drip, &c. If plants are placed out at once they will be well established by winter. In selecting cuttings for this purpose I obtain the strongest of the fresh growth—rooted if possible.

These are planted on a small prepared bed, each cutting being pressed firmly down. As rooted offsets are used for this purpose they become well established by winter, and there is no danger of the frost disturbing them. The plants are allowed to remain in the frames until they begin to show flower in the spring. It is wise to choose mild weather for transplanting, so that the plants are not checked in growth. If plants or flowers are required for show it is the best plan to leave them in the frame, giving abundance of air on suitable occasions, and shading on very hot days.—VINCE.

PEACH-TRAINING FOR AMATEURS.

A FRIEND has kindly sent me a copy of a contemporary, in which I have the honour to be criticised thus—"Mr. Taylor of Longleat has set himself a task in attempting to prove that the fan system of training stone fruits is wrong in principle according to all our notions of vegetable physiology." Happily this is not a very difficult task. Mr. Robert Thompson in the original edition of the "Gardeners' Assistant," at page 550, says, when writing of the Peach, "The fan method is the best, yet it requires particular care and some knowledge of the physiology of the tree, otherwise the latter will become weak at the bottom and too strong at the top, as well as exhibit irregular growth throughout." Here, then, are two important admissions: first, that the system is not a perfect one, and secondly, that to carry it out the operator requires both theoretical and practical knowledge as well as to be particularly careful. The first justifies me in recommending a system which, if not absolutely perfect, has not so many disadvantages as fan-training, and the second goes a long way towards corroborating me when I say that "seven-eighths of the men (including labourers, specially mentioned in the preceding line) brought up in gardens never could be trusted to attend to fan-trained Peach trees." If that is too sweeping an assertion I shall be glad to modify it on proof being adduced to the contrary by responsible practical men, but at present I have nothing to withdraw, and am of opinion that the fact is too evident to require argument. Even amongst those who call themselves young gardeners I wonder how many can honestly say they understand the fan method of Peach-training. I say this without any disparagement to the young men in question, for it is a difficult lesson to learn, and the attention given to hardy fruits of late years has been small compared with that spent on less difficult subjects.

I am taken to task for presuming to think that my own particular notions on vegetable physiology are "all our notions." Now the only physiological question here is whether branches at different angles from horizontal to perpendicular have all the same chance. According to my notions of vegetable physiology the lower branches, being horizontal, have a very poor chance indeed. I have no objection to except my critic, but with that exception I shall still be so presumptuous as to assume that that agrees with "all our notions." Granted, then, that in fan-training the force is equally divided from the fact that no two branches on one side of the tree have the same angle, a plan which will give the same angle to every branch, and which is simplicity itself, ought not to meet with any formidable opposition. It is nothing to me that "every noted cultivator has recommended fan-training," and has spent a decade in attempting to carry it out if his trees have lived so long; noted cultivators have recommended things and systems before which are now obsolete, and it is possible that fan-training as far as the Peach is concerned will follow in their wake. In these economical days we must move along and not wait from six to ten years for that which need only take two and cost comparatively little. If those who grow Peach trees for sale would only train them much in the same shape as they do their horizontal Pears, which as I have pointed out in a previous paper can be done in the second year from the bud, we might always reckon on having a crop of Peaches the second season after planting, should it be a favourable one.

As to the objection that with this system there would be more bare wall at the bottom than there is when the fan-training is carried out, it is not worth much, for the lower branches in my case are equal in vigour with the upper ones, and barring the frosts, which have a special liking for lower branches, will carry an equal crop. In fan-training, on the contrary, the lower branches are the weakest; and although I have had the advantage of being employed in more than one garden where there were some of the best fan-trained Peach trees in the country, I have never seen a great weight of fruit gathered from within 3 feet of the ground, even though flued walls were used in some cases. Training merely for the sake of covering a wall with fruit trees is a thing of the past with most of us, our employers preferring rather to look at the produce than at the training. Nevertheless, apart from its

economical aspect, I maintain that the system I have recommended is when fairly carried out equal in appearance to any other, and that as the greater part of the wall is covered in two or three years there is less waste of space than there is with fan-training.

I have no doubt my critic considers himself witty, and enjoys giving a sly poke at me and my "extraordinary ignorance;" but that is not gardening, and were I ever so clever in retort there is no room for banter and gossip in the *Journal of Horticulture*. Such dainties are better suited to the columns of "Truth" and the "Cuckoo;" but I may hint that my friend's arithmetic is a little faulty, also that I have the results of my Peach-training to show, and shall be glad to hear where I can see his, or, in the case of that being amongst the invisibles, where I may see outdoor fan-trained Peaches at the present moment which approach the models drawn in the standard works on gardening, and which are equal in vigour throughout.

I think the term "oblique training" is not appropriate to a system which has upright stems, though we have the authority of that estimable man and clever pomologist, Mr. Robert Thompson, for calling it by that name. Would not "fish-bone training" be better?

How is it that Dr. Hogg Peach, which used to be early, has with me for several years now been a midseason Peach, as late as Bellegarde, or even later? Early Ascot is the only one I have to follow closely after Hale's Early and Early Rivers. Lord Napier Nectarine and Early Ascot Peach are ripening simultaneously. Will other growers kindly say what Peaches they have ripening at the same time, and immediately after this fine Nectarine?—WM. TAYLOR.

WINTER CUCUMBERS.

It will be an advantage if plants are already established, yet Cucumber seed may still be sown to obtain plants for fruiting in winter, therefore a brief record of my practice may be useful. The seeds should be sown singly in 60-sized pots placed near the glass. The best variety for winter is, I believe, Rollisson's Telegraph; some recommend Cardiff Castle, but as it was only tried here last summer I cannot speak as to its winter bearing qualities.

The soil in which the plants are to be grown should consist of about one-half loam and the rest of decayed manure (that from an old hotbed being preferable), and leaf soil. The compost must be well mixed and placed in the house at least two days before planting is to be done, so that it may be warm quite through. The glass and woodwork should be thoroughly cleaned previously, both to give light to the foliage and to destroy any insects that may be in the house.

When the plants are to be turned out of the pots care should be taken that the soil is thoroughly moist. They may be syringed twice a day except on very wet days to check red spider and thrips, and if the syringing is done thoroughly no insects will appear. As soon as the fruit commences swelling it is advisable to apply liquid manure water in a tepid state to the roots; this should be weak and applied often.

The temperature should range between 65° and 75° Fahr., but on bright sunny days with a little air it may be 5° higher; in fact with a little extra fire heat it will be well to have the ventilators open every day. The atmosphere as well as being warm should also be moist, and for this purpose water must be thrown on the floor occasionally, but not too often, because in the dull winter months the leaves are liable to be attacked by mildew, which, if it appears, should be promptly destroyed by dusting with sulphur.

If too many fruits appear all but the best should be removed, as too heavy a crop at first exhausts the plants. The shoots must be stopped at every second joint when the trellis is sufficiently covered, and some of the old wood can be cut out to allow the young growths room to develop.—A. R. P.

GAILLARDIA PICTA VAR. LORENZIANA.

MR. CHR. LORENZ, seedsman of Erfurt, Prussia, sends us the annexed figure of a new and remarkable variety of Gaillardia, which exhibits a phase of floral transformation that is occasionally observed in other members of the natural order Compositæ. The central tubular florets are developed to such an unusual extent that the flat ligulate florets at the circumference are either not produced at all, or so imperfectly and so small that they are scarcely perceptible. If the flower heads are produced as large and full as that shown in the woodcut the plant will undoubtedly prove an acquisition of considerable value, and will merit the attention of all who grow hardy plants. Mr. C. Lorenz also

gives the following account of the plant, and states that it will be shortly sent out:—

"Gaillardia picta is generally appreciated as one of the most beautiful garden plants, and though in mild climates biennial and even perennial, it is generally cultivated as an annual. The corollas in the circumference of the flower head are ligulate, three-toothed at the edge, at the upper part yellow, the lower portion purple, the disk florets tubular and five-toothed. In the course of the time several varieties have been obtained—viz., var. grandiflora, var. albo-marginata, var. sulphurea, and others; but eight or ten years ago the species showed the propensity to transform the ray florets and sometimes those of the disk into much-prolonged infundibuliform, regularly four or five-cleft tubular flowers; but only a few flower heads of this form were then to be seen, and they were developed very imperfectly, mostly with only two rings of such tubular florets. Attempts to improve this form and raise it to a certain degree of constancy were for a long time unsuccessful. But in Gaillardia picta var. Lorenziana we have at last attained our object. The form is distinguished not only by a regular development of tubular florets constituting a beautiful globular head, but a satisfying degree of constancy has also been secured. From this we have raised six beautiful varieties, which show the colours of the ordinary varieties in a different arrangement. 1, Claret or purple tube, the segments tipped with white; 2, amaranthine tube, the segments tipped with gold; 3, golden tube, throat claret; 4, gold tube, throat amaranthine; 5, purple tube,

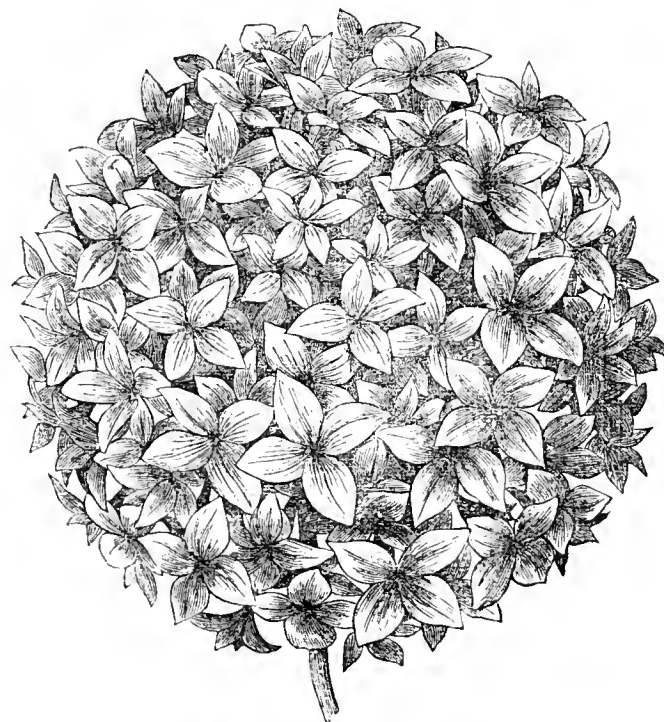


Fig. 36.—Gaillardia picta Lorenziana.

segments tipped with gold; and 6, pure yellow. Also these varieties are constant in a certain degree. The flower heads are 3 to 4 inches in diameter."

[We shall be glad to receive a flower-head of one of these Gaillardias equal to that represented in the engraving.—ED.]

SOUTH SHIELDS FLOWER SHOW.

THE South Shields and Wistoe Floral Society held their thirty-eighth Exhibition in the cricket field, Westoe, in a spacious ohlong marquee 80 feet by 40. The interior fittings of the marquee were very neatly covered with Heather in full bloom, which was interspersed with Asparagus foliage, causing a most pleasing effect.

The Show, with few exceptions, was much superior to that of last year, the entries being greater and the quality of the exhibits generally much superior. The Society is divided into open (or gentlemen's gardeners', amateurs', and cottagers') classes. For six stove and greenhouse plants in bloom the Society offered £15 divided into five prizes averaging from £6 to £1 each. For these there was a very strong competition. No less than six lots were staged. Mr. John Thompson, nurseryman, was first with a superb plant of Lapageria alba with over two hundred flowers open. He had also a good specimen of L. rosea, remarkable for its large superbly coloured flowers. His best other plants were Stephanotis floribunda and Bougainvillea glabra. Mr. Appleby, gardener to H. Craven, Esq., Briery, Sunderland, was second with much smaller plants, but even and well flowered, consisting of Erica Marnockiana, Erica superba, Bougainvillea glabra, Dipladenia amabilis, and Phœnocomia prolifera Barnesii. Mr. Battenshy, Hagg Hill, Blaydon, was third, his best plant being

Erica Marnockiana about 5 feet through, the same in height, and superbly flowered from the base to the top. Mr. Smailes, gardener to W. C. Stephenson, Esq., M.P., was fourth. Mr. Charlton, gardener to J. Hedley, Esq., West Chirton, was disqualified for having two *Bougainvilleas* of the same variety. He had a *Lapageria* resembling closely a cross between *alba* and *rosea*, the flowers being of a delicate flesh colour. Altogether the plants were good for the time of year in all the stands.

For three decorative plants Mr. Smailes was first, and Mr. Watson, gardener to J. Eltringham, Esq., second. For three fine-foliage plants Mr. Appleby was first, *Croton majesticus* and *Cycas revoluta* being his best plants. Mr. Thompson was second. For the best six Zonal and Tricolor *Pelargoniums* Mr. Smailes and Mr. Watson were first and second, and second and first respectively, in each class. For three exotic Ferns Mr. Appleby was first with creditable examples of *Gleichenia Mendelli*, *G. rupestris*, and *Davallia Mooreana*; Mr. Smailes being second. *Coleuses* in this class were well shown, although scarcely as good as last year, Messrs. Watson and Smailes showing them well. Florists' flowers were remarkably good, but, except the premier stand of *Gladioli* of Mr. Thompson, none of them was named. This is one of the worst features of the Show. The same applied to many of the plants as well. The Society ought to more severely enforce the rule as regards naming the plants. Mr. Harkness of Bedale and Mr. Walker, Gateshead, won the principal prizes for *Dahlias*, the former showing excellent flowers. For *Picotees* and *Canations* Messrs. Scott, Newcastle, and Flowdy, Gateshead, were respectively first. *Asters* were good, so were *Marigolds*, which were principally contributed by Mr. Spoor, Swalwell, and Mr. Robson, Birsley.

FRUIT.—The show of fruit was not large, but the *Grapes* from Mr. Smailes were certainly such as have not been seen at Westoe before. For a collection of fruit, *Pines* excluded, Mr. Smailes was first with superior bunches of *Black Alicante* and *Buckland Sweetwater*. These bunches were each about 2½ lbs. in weight. The *Alicante* was finely finished, being large in berry, fine in form, and exquisite in colour. His other best dishes were *Jargonelle Pears* and a good fruit of *Victory of Bath Melon*. Mr. Charlton was second. For two bunches of *black Grapes* Mr. Smailes also proved invincible with *Black Alicante*, the same exhibitor having the best white *Grapes*—two fine bunches of *Muscat of Alexandria*. For the heaviest bunch Mr. Smailes won with *White Nice*, weighing about 6 lbs. Mr. Watson and Mr. McPherson, Clevedon House, also contributed fruit.

Vegetables were very good, Mr. Robson winning the prize for the best collection. Mr. Spoor showed six very handsome *Leeks*. Mr. Appleby contributed a dish of *Peas*—a fine sample of *John Bull*.

The amateurs' classes, as in most north-country shows, were very good, the exhibits being creditable. Plants, florists' flowers, and vegetables were good, the latter particularly so; Messrs. Battensby, Kennedy, J. J. Atter, and Bennett being the principal exhibitors. The Secretary, Mr. Dobby, and the Treasurer, Mr. G. Easton, were strenuous in their exertions to render the Show a success. The latter gentleman was the founder of the Society, and has been connected with it for thirty-eight years.

NOTES ON THE GLASNEVIN BOTANIC GARDENS.

I HAD a short time to spare on my way to the Manchester Exhibition, and took advantage of it to have a run through those fine gardens of which Irishmen are so proud, and I am indebted to the courtesy of Mr. Moore, the Curator, for seeing many rare plants not otherwise accessible. The note of "D., Deal," page 179, which caught my eye in the *Journal* on my return, reminds me that one of the beauties of the cool conservatory for nearly two months here has been *Disa grandiflora*, which many have failed to flower satisfactorily in this country. There are large numbers here, and although many are in small pots they bear three, five, and several plants even seven blooms to a spike. Peat and sphagnum are largely used as potting material, but I understand the plants are not found to dislike a mixture of leaf soil and decomposed humus. Most of the best were out of bloom, but a treat remained in those left.

The Palm house was especially attractive. It contains many specimens, said to be the finest in Europe; in fact, it was so when I first saw it twenty years ago with the late Dr. Moore. I need not refer to the collections of *Orchids*, stove, succulent, or greenhouse plants. They have been frequently noted by other writers; but we cannot pass without a note the great *Victoria regia*, which had five monster leaves, and very promising flowers, models of healthy growth, while not less interesting was the aquatic collection around.

I was, in the short time I had, more anxious to see the outdoor bedding and border plants, but before coming thereto I may be permitted to cursorily refer to the fernery, situated partially shaded behind. My greatest surprise here were the large pans of *Filmy Ferns*, *Todeas*, *Hymenophyllums*, and *Trichomanes*. Not least noticeable was the more generally known *Davallia Mooreana*, for which the Fern world is indebted to the present Curator's late father, Dr. David Moore. Here, too, were some of the newer

Lastreas, *Lomarias*, and *Microlepias*. In the same range is what may be called the nursing exotic department for all the newer and rarer introductions, among which the fifty fine specimens of *Nepenthes* were grand.

In the border in front of the long range I was just in time to see a few fully expanded blooms of *Crinum Moorei*, also introduced by the gentleman named above. It is far superior to *C. capense*, which had just ceased blooming. Both were fine after having endured last year a temperature nearly down to zero. I hope the new promised *Crinum* about to be introduced by Messrs. Henderson (C. Powell), a cross between those two, will be equally hardy. I was, however, a few days late to see a fine companion outdoor border flower, needlessly grown under glass—*Amaryllis Ackermanni*, with scarlet blooms 7 inches long, so welcome now when flowers are scarce. There was also a fine display of the showy single *Dahlias*, *Phloxes*, *Campanulas*, *Zinnias*, *Pansies*, *Asters*, early *Chrysanthemums*, the *Dianthus* family, *Fuchsias*, *Gladiolus*, *Pelargoniums*, and many other effective flowers now in bloom. I was glad to hear from Mr. Moore that he intended to cultivate even more extensively all the more common flowers for the instruction and example of the visiting public, such as most of them could imitate at home.—W. J. M., *Clonmel*.

ARTIFICIAL MANURE AND TOMATOES.

TOMATOES are now becoming so popular that many growers find it difficult to meet the demand, and consequently any hint respecting specially successful culture is acceptable to those engaged in the culture of this excellent fruit. During a recent visit to the establishment of Mr. Wiggins, nurseryman and market grower at Tottenham, my attention was drawn to a striking instance of the benefit derived from a judicious application of some artificial manures. A span-roofed house 120 feet long has three beds, the central one occupied with young Vines and Tomatoes, the two side beds with Tomatoes alone, planted about a yard apart and not trained to the roof, but with the shoots sufficiently thinned and spread out upon the soil. The central bed, having been specially prepared for the Vines, contains a substantial compost, while the side beds have only ordinary soil with a small proportion of manure; yet the contrast between the plants is remarkable, those in the side beds bearing from two to four dozen large handsome fruits, the growth and foliage being also proportionately vigorous, yet those in the centre have only small fruits, some of which will not be worth gathering, though the variety is the same in both cases—viz., *Trophy*. This difference is thus explained by Mr. Wiggins—The plants were placed out late, and as they seemed to be making very slow progress he determined to assist those in the poorer soil (the side beds) with a little artificial stimulant. About half a bushel of Clay and Levesley's fertiliser was applied and washed in, the result being soon apparent in the growth and subsequently in the greater size of the fruits. It would be interesting if Mr. Wiggins record the relative weight of fruit obtained from a similar number of plants of each, but judging by appearances the weight from the assisted plants will be at least three times that from the others.—R. C. S.

CANTERBURY ROSES.

PEOPLE staying at Dover naturally visit Canterbury, consequently I have carried out the usual arrangement, having the extra inducement of a visit to my colleague this year and last at the Crystal Palace, in search of the best Rose. The line from Dover very naturally runs up-hill. It was a sad sight this hapless harvest time, the sheaves hopelessly dripping on the hill sides, and the long swathes of mown corn almost grown into the ground. The beautiful Hop plantations were the only cheerful objects, and these had been abandoned perforce by the hop-pickers. Of course the first object at Canterbury is the Cathedral. Presently I was standing on the precise spot on which Becket was murdered. One particular slab has had a piece cut out of it, deep dyed with the blood of the Saint, which is reported to be at Rome. Dean Stanley, however, with that marvellous power of observation which never deserted him, when shown the relic at once perceived that the piece cut out was larger than the hole that it came from, which presents an obvious difficulty.

I may not dwell further on the Cathedral's many other objects of interest. Upon this followed my visit to the City Rose Garden. I have been allowed to describe in these columns on two several occasions model town Rose gardens at Reigate and at Croydon. Here I found in a city one surpassing them both. First in respect of size. It is marvellous, as I have shown, how small a space is sufficient for a Rose garden if science and money are there to

make the most of it. This garden contains an excellent supply of Hybrid Perpetuals, sufficing to insure the second prize for eighteen at the well-contested local Show. It has also a good-sized Tea Rose house entirely devoted to Maréchal Niel, several side beds of Tea Roses, and the pride of the place for its elegance and novelty—a Tea Rose glass arcade, 57 feet long, 8 feet high, and 10 feet wide, which comes nearer solving the problem of how to grow Tea Roses in our climate than anything which I have seen yet. The basket of Roses I was most obligingly presented with contained Teas that would have held their own at any country show; while E. Y. Teas, A. K. Williams, Marie Baumann, and others were also very fine indeed for the time of year. The size of this garden is just 21 perches! and Roses have been grown here for seven years no less successfully. Part of the secret was to be seen near the entrance gate in a high heap of rich loamy soil, also in a large barrel on the banks of the beautiful trout stream which bounds one side, well filled for occasions with liquid manure. The rule is with every Rose that is fresh planted to fill in at least a foot square of entirely new soil. The result, when I saw the plants, was a high state of autumn excellence; but the Teas under the glass verandah, with open ends and side, were more healthy than those in the Tea Rose house. I believe it is now generally accepted by the best authorities that, if these houses are to answer, the roofs must be made moveable, so as to be off at least half the year.

I think I may promise a hearty welcome to any brother rosarian who shall visit No. 2, Palace Street, Canterbury; certainly he will hardly find anywhere a more interesting and instructive city Rose garden.—A. C.

A WEEK IN BELGIUM.

[THE FIRST DAY.]

"CHANGES" and holidays have certainly become fashionable now-a-days, and are, indeed, regarded as necessities of our being. Without doubt constant monotonous toil is enervating, and a short period of cessation from labour has a wonderfully rejuvenating effect on most constitutions. Yet possibly holiday-making is occasionally overdone, and changes do not always result in benefit. It is a question if the mechanics' Saturday afternoon is a benefit to all, as with many, unfortunately, it only affords facilities for the waste of that which might be utilised. But gardeners, at least, have no Saturday afternoons at their disposal, and on few Sundays can they find complete repose for mind and body. They, if any body of men do, earn a change and need it; such a change they occasionally have, or ought to have, by visiting shows. Even the break of a day from mental and manual labour is beneficial; besides, at those gatherings most men gain hints that they afterwards turn to profitable account. Several years spent between garden walls enable me to speak practically on this point, and I plead that others may have what I once had the privilege of enjoying—an occasional holiday.

Flower shows have no longer special charms for me, for my visits to them mean labour, not rest; nor do those in England at any rate afford much change, for they are strangely alike year after year. Foreign shows at least possess some novelty, and the late Antwerp Exhibition attracted me over the water, or perhaps, to be more candid and exact, it afforded me an excuse for spending a week amongst old friends and revisiting old scenes in Belgium, for I confess I cared little about the Show itself, beautiful as it undoubtedly proved. I simply wanted "a change," and had one, pleasant, refreshing, and complete.

Those gardeners and horticulturists who can command a week's holiday may spend it interestingly in the thrifty little kingdom in question, and as inexpensively too, as travelling from one side of England to the other, or sauntering by the seaside watching the waves and getting melancholy. I never see the sea but it reminds me of the walls of a prison and I want to be over, and a week at the side of it would certainly make me miserable. The facilities for crossing are great, and, considering the provision made for the comforts of passengers, wonderfully cheap. It is, or rather used to be, the opinion of some foreigners that Englishmen "take to the sea like ducks;" but all of them do not do so, and it is astonishing how great is the fear of many of what the French call *mal de mer*—the English, sea-sickness. I am able to give some idea of what this is like, and perhaps some day may do so; in the meantime let no one be deterred by it from crossing the "silver streak." If the weather is fine they will not have it if they do not fear it; if it is rough they probably will fall victims, and then they will very decidedly have "a change."

Desiring to have all the time possible in Belgium I elected to travel by night, and how quickly and comfortably it is done! In London at 7 P.M., Harwich at 9, and in Antwerp at breakfast

time next morning. As I know very well a little description of the journey will be as acceptable as a disquisition on Orchids, Ferns or Cabbages, I shall not confine myself to strictly gardening matters. Of gardening exclusively most readers have enough; some, and probably not a few, too much.

From Harwich the sea passage is something under a hundred miles, and is crossed in about eight hours, the distance from Flushing to Antwerp up the Scheldt being sixty miles. Whatever class a person may travel by rail I cannot advise him to cross the sea in the "steerage." I once saw in a storm about 150 people "all of a heap" and something more, in that uncomfortable part of a steamer, and I determined to avoid that part for ever, and to advise others to do the same. The steerage is cramped and comfortless, the saloon large and almost luxurious, and the cost between the two is trifling. Our ship was the *Princess of Wales*, which is evidently popular, for every berth was taken. The saloon is like a well-furnished hotel, even to plants and flowers on the tables, and everything required can be had at moderate prices. It may perhaps not be generally known that the trade in plants for ship decoration is a very great one, and that attractive plants are a necessary part of the appointments on all ocean-sailing passenger ships. Mr. Bardney could perhaps tell us something about the extent of this trade at Liverpool. But to proceed. Of the sea we saw but little; it being a wet night and dark we "turned in," went to sleep and dreamt, at least I did, some cantankerous man was bent on quarrelling with me; first he pointed at me scornfully, then touched me, then struck me, once, twice, thrice, each time harder than before. Although I trust of a peaceable disposition it behoved me to exercise an Englishman's privilege under those circumstances, and my antagonist fell screaming. The noise awoke me, and my assailant proved to be the sides of the berth against which I was being knocked, and the scream was the cringing of the ship as she battled with the waves. I have known pleasanter moments, but it was better than *mal de mer*, and the day was dawning, and Flushing near.

The Scheldt is a noble river that creeps through a fertile land like a huge serpent. Its curves are so numerous that the distance to Antwerp, as has been said, is sixty miles, while an Antwerp Pigeon would find its way home in twenty-five miles. The width varies from five or six to one or two miles. No one can inspect the banks of this river and, as well as he is able, the land beyond, without being struck with the great work that was accomplished in times past by the enterprise and industry of the Dutch. The river is raised high above the land for miles, so high that in some places only the tops of the trees are visible and the spires of the churches. On each side thousands of acres have been reclaimed of the most fertile soil in Europe. The scenery is not picturesque, for there is nothing to be seen but long lines of Poplars skirting the sides of the ditches, that are, however, invisible from our standpoint, and here and there a village with its gables and church steeple peeping over the banks. We have none of Nature's grandeur to command our admiration, but the works of man, with their comparative tameness yet great utility, predominate. An American traveller was astonished at what he saw. "Ours is a great country," he said, "but Nature has made it. Our Rocky Mountains are magnificent and awe-inspiring; but we have nothing in America like this, and the people who have done this work are a great people." This work of land-reclamation has been there so long and passed so frequently that it is probably unnoticed by hundreds of voyagers, but unless it was of some magnitude it could not have astonished an American who had visited all the capitals on the continent of Europe; and his verdict must be acquiesced in, that the country through which we passed is a monument of the industry of a "great people." But we glide past some rather formidable fortifications and are at Antwerp.

Before leaving the steamer the traveller should have some money changed, if he did not make the necessary provision before leaving England. The steward, who is obliging in all things, and does not hang about you like a railway porter as if he had lost something, will readily give you a full Belgian equivalent for English coin. True, anybody in any country will take English sovereigns, but there is often a difficulty in the way of change, and it is well to be provided for all emergencies. You appear to have more money in Belgium than in England, for you receive 25 francs for every sovereign, and in many things the francs go there as far as shillings do here. They certainly go as far in railway travelling and much further in cigars. They also go as far in cab fares, or rather you can go as far for 10*l.* there as for 1*s.* in London; but the hotel charges are about the same in both countries, except as regards soap, and this you had better take with you, or you will certainly either have to go without or purchase rather dearly. Water is plentiful in Belgium and they use

it freely, for they wash the outsides as well as the insides of the houses; but soap, in the hotels at any rate, appears scarce. My friends of the gardening fraternity ask me far more questions on the customs, &c., of the country than about plants, therefore I make no apology for mentioning these matters here. There was a time when I should have been glad of such information, and hence I conclude it may be useful to others, for, to speak paradoxically, it is certain that a number of persons go to Belgium every year "for the first time," and in all probability the numbers will increase. I will, however, say something about plants by-and-by, for I have a headful of them which I shall be glad to have emptied.

Cabmen are, I think, generally pretty smart all the world over, and my Belgian jehu, though youthful, was old enough to take his observations before taking me. I hailed cab after cab on landing, but the drivers looked straight over my head. I soon perceived that I was neglected because alone. The more passengers the more money, and the "parties" were first picked out, individuals having to wait their turn. They appear to know just a little English—"shillings" for instance, and are good enough to take them in lieu of francs if you are not better provided. The first time I went to Belgium I neglected to provide myself with Belgian money. My first cab fare was, I knew, 3 francs—2s. 6d., but nothing but 3s. would satisfy. A half-crown did not appear to be understood at all. It was "tree francs—tree chillings," and by the want of the former I was chilled out of sixpence.

Antwerp is a city of extremes; you find the roughest of people about the quays, and the most polished and polite in the town. You find the oldest and some of the ugliest buildings imaginable, and also modern erections of an imposing character. You find the narrowest and most angular of streets you can think of, and broad, open, and gracefully curving boulevards. You find the dingiest of "estaminets" or taverns, and the most beautiful of cafés and best of hotels. You find all sorts of religious tableaux sculptured and gilded on the corners of houses, and not one per cent. of the people going to church. Sundays are as other days, except being more gay, in this good old Catholic town, and those who are very strict in their devotions go straight from mass to secular concerts. The cathedral and churches are very beautiful, and appear to be always open; and even there you may see contrasts—in the intense devotion of some visitors and the play of the children, who rush in and count their beads—making a race of it—and out again at their games, apparently enjoying the fun immensely. You find excellent horses in the drays and miserable hacks in carriages, and the only dogs fit to be seen are yoked either singly or in pairs or running tandem in vehicles of various kinds, especially milk carts. The utility observable is very stern. Even dogs do the churning; and the pleasures of the people, when they do indulge in them, are earnest too. At the communal fêtes it would seem as if all the pleasure fairs in the country had congregated together in the city, and had the weather been finer there would have been quite a carnival.

The horticultural show, that has been described, was a prominent feature, and the nursery of Mr. Charles Van Geert, one of the oldest and most esteemed of Belgian horticulturists, was a centre of attraction to many, and his hospitality to his visitors was worthy of the occasion. Some account of this and other nurseries, and of the winter garden and improvements at Laeken, must be postponed, as they do not pertain to the "first day" of any "week in Belgium."—J. WRIGHT.

DOUBLE HELICHRYSUMS.

No half-hardy annuals have afforded me as much pleasure this season as a collection of double *Helichrysums*. It is much to be regretted that they are not better known. I know nothing that will give a richer and more serviceable return for so little trouble. I am now having a rich harvest of beautiful flowers from a two-shilling collection of seed. This was sown early in spring in a box, and after well hardening the young plants they were dibbled out 2 feet by 1 apart, in a good rich soil. They are more beautiful in a large mass like this than when dotted about. Of the many improvements of all classes of flowers of late, I see nothing more striking than with these. We now have almost every shade of colour possible. Looking at a mass of the flowers before quite open, we are reminded of the Persian *Ranunculus*. I must yet speak of one or two invaluable properties of this neglected Everlasting. Not the least is the long time it keeps in flower. The last three weeks has been a trying time, and most garden plants have been woefully disfigured. Not so these. At night and on wet dull days their shell-like petals are closed up (without the flower is old), and only induced to unfold by warmth and sunshine. They are the best of Everlastings, gathered just when

half open and hung up in any shaded airy room. We use them largely for church decoration. Lastly, I find these *Helichrysums* have not only been wonderfully improved in colours but also in character of growth. They formerly were tall lanky plants (and there are many such now), but I am glad to find that most of them are of a dwarf branching habit. This is a great acquisition. Many grow not more than 8 to 10 inches high and as much through, while others run to 2 to 3 feet high. The dwarfs are exquisite and will yet shine in the ribbon borders and flower beds. I mean to try them there next summer. I have only now to thank our continental friends for the improvement they made in this lovely flower, and ask them to select us a good strain of a dwarf compact habit and distinct colours; for such there will be a ready sale.—JOHN TAYLOR, *Hardwicke Grange, Shrewsbury*.

THE ART OF COLOURING GRAPES.

THERE is no doubt that "SINGLE-HANDED" is right in saying it is the want of air that prevents Grapes colouring which are situated far away from the ventilators, while those which are near colour perfectly. One would think at first sight, that when the ventilators are open both at the back and front sufficiently to keep a house comparatively cool, there would be a perfect current of air which should be ample for all purposes. But I am convinced that colour is not produced by any particular degree of temperature, neither will a certain number of cubic feet of fresh air per minute always produce it. The colouring agent, whatever it may be, is extracted from the air by the foliage, and it is natural to suppose that as the quantity is limited, that foliage with which it first comes in contact has the best chance of getting a supply; and there is no doubt that, though all the fruit in common depends on the roots and the foliage in general for its supply of raw material, yet local fruit depends on local foliage for its quality and finish. This being so, large panes of glass with puttied laps are not so likely to produce good colour as smaller panes with abundance of small apertures, and I think this will be found to be so in practice where there is no effort made to counteract the effects of the almost airtight glazing. Black Grapes of the Hamburg class I consider want more air to colour them perfectly than other Grapes do. Taking one season with another, I have never seen Hamburgs exhibited with such colour and finish as Mr. Henderson of Cole Orton used to exhibit them, and I have always understood that his houses were glazed with small panes, and that they were far from being weather-proof. I am not, nevertheless, going to advise a return to the small panes, but of that more anon.

Most Vines I believe are trained too near the glass. All the foliage which is most exposed to the light, and which ought therefore to be of the greatest benefit to the Vines, has its upper surface pressing close to the glass, and is thus to a great extent prevented exercising its natural functions. Thorough ventilation of dormitories is of little use where the occupants will persist in covering their heads with the blankets, yet some of us act almost as inconsistently as this with our Vines. We give air no doubt to the house, but to be successful we must go farther than that—we must do as sensible people do when they distribute charity, see that it goes where it is most needed. I have said that the leaves pressing against the glass are unable to perform their natural functions; they are not only rendered impotent themselves as regards inhalations and exhalations, but by preventing the circulation of air and obstructing the rays of light they deprive a great portion of the plant of its vital necessities.

The remedy, then, for bad colouring with Grapes otherwise so well managed as those described by "SINGLE-HANDED" is more air in such a way that the foliage can have the full benefit of it. Four feet apart is quite near enough for Vine rods—mine have more space than that—and 2 feet from the glass is not too far; the upper portion of the Vines under my charge have a space of 6 feet between them and the glass, and there being nothing to prevent the air gaining direct access to every leaf, merits and demerits as far as colouring is concerned are equally distributed.

There is another advantage in having Vines trained further from the glass than they generally are which is worth noticing. Everyone knows how difficult it is to tie the young growths down in spring, and when tied as we think safely during the day they will often snap off when they become more rigid at night, and leave a piece of bare stem. "SINGLE-HANDED" and others recommend training them in V-fashion. I leave them alone with the exception of stopping the points till the Grapes are ready to thin, when they are easily bent to any form, and are tied down as we proceed with the thinning.

Besides a saving of time and some branches there is no doubt that the upright natural position is favourable to the setting of the

flowers. I observed last May that Mr. Barron was following the same practice in the large house at Chiswick, where, although the Vines are not a great distance from the glass, the sides of the house being almost upright, the leaves cannot press against it with their whole surface, as they do in comparatively flat houses. It has been noticed by many that, although there are very great disadvantages to contend against in growing Grapes in this said house, yet it generally finishes off a heavy crop marvellously well; indeed, very much better than the best practitioners amongst us would predict if we had not seen what can be done there. Good attention aside, may not the position of the leaves I have mentioned—i.e., not pressing their surfaces against the glass—have something to do with it?—WM. TAYLOR.

IRISES.

(Continued from page 331, Vol. I., New Series.)

To conclude the brief review of the chief species in the beautiful genus *Iris*, only one section, the Pogoniris or Bearded kinds, now remains to be considered, and though this contains a number of really ornamental forms, and some of the best known in English gardens, the most distinct can be described in few words. In treating the genus systematically—that is, under the several divisions to which the numerous species have been allotted, there is one disadvantage—namely, that the order of flowering cannot be so clearly indicated as might be desired by some growers. To rectify this, however, the list at the conclusion of these remarks will probably be found useful, as the most attractive or interesting forms in flower during seven or eight months of the year are there named.

In the classification adopted by Mr. Baker, which has been followed throughout these notes, the division Pogoniris is defined as including those species that have the falls bearded down the claw and the standards beardless, the root, like many others in the genus, being a rhizome. The various species are then arranged in five groups, chiefly distinguished by their relative dwarfness of habit, the typical forms chosen being *I. pumila*, *I. biflora*, *I. variegata*, *I. germanica*, and *I. pallida*. As each of these includes several species of more or less interest and beauty we may devote a few remarks to them in the order named.

First respecting the *I. pumila* group, which is marked by very dwarf habit, the flowers being produced early in the spring, and includes several species; but one of the best known is the type *I. pumila*. This is one of the dwarfiest of the genus, scarcely exceeding 5 inches high, with short tapering leaves, and is compact in habit, bearing bright purple flowers which are very attractive in spring, generally April, though they are of short duration. This may claim a place amongst the oldest of our garden plants, for it was known to Parkinson, who described it in his "Paradisus" as the "Lesser purple dwarf Flower de Luce," and also enumerates six varieties, more even than are found in cultivation at the present time—at least, really distinct forms. One of the most pleasing varieties now known is *I. pumila cœrulea*, which has a preponderance of a bright blue tint in the flowers. The species is a native of hilly situations in central and south-eastern Europe, but it is not at all particular as to soil under cultivation, thriving in any that is not very heavy or wet, and it is easily increased by division of the roots. Passing *I. chamæiris*, which does not possess remarkable beauty, *I. olbiensis* is the only other form in the *pumila* section that needs special notice. This, though ordinarily regarded by growers as a distinct species, is considered by Mr. Baker as simply a variety of *I. chamæiris*. However, that is a matter of small importance, especially as several of the forms in this section come near in characters. It is something like a slightly enlarged *I. pumila*, having rich purple flowers, which in some cases are varied by the introduction of bright yellow hues that contrast very strikingly. The flowers, moreover, possess a very agreeable fragrance—a quality of no mean importance.

The *I. biflora* group has similar characters to the preceding, only a few unimportant botanical peculiarities serving to distinguish them. The type named above is the most attractive in the group; it is of medium height, rarely exceeding a foot, and has pretty flowers, the falls being veined with lilac or various shades of purple, some very rich on a lighter or nearly white ground. It has been not inaptly described as a dwarf *I. germanica*, for it bears some resemblance to that well-known species. One variety, *I. biflora gracilis*, well merits its name, being slender in habit and delicate in colouring, the tints being lighter than in the ordinary form. Other species in this group are *I. lutescens* and *I. arenaria*, neither very beautiful, the latter being chiefly noteworthy for its spreading roots and the dry sandy positions in which it is found growing naturally.

The *I. variegata* or *I. aphylla* group is not a very remarkable

one. The plants composing it are better known than those of the two previous groups, sometimes reaching nearly 2 feet, the flowers being borne on stems that are but little taller than the leaves. The chief garden form is *I. variegata*, and this has received much attention by growers, something like twenty named varieties being catalogued and described by various firms. It also is one of the "kinds of Flower de Luce" known to the old writers. Parkinson mentions it and says, "The yellow variable Flower de Luce loseth his leaves in winter contrary to all former Flower de Luce, so that his roote remaineth underground without any show of leafe upon it; but in the beginning of the spring it shooteth out faire broad leaves." Continuing his description of the flower he says, "The falling leaves are of a reddish purple colour, and the three that start upright are of a smoakie yellow." This is not a very glowing description, but is truthful as applied to the

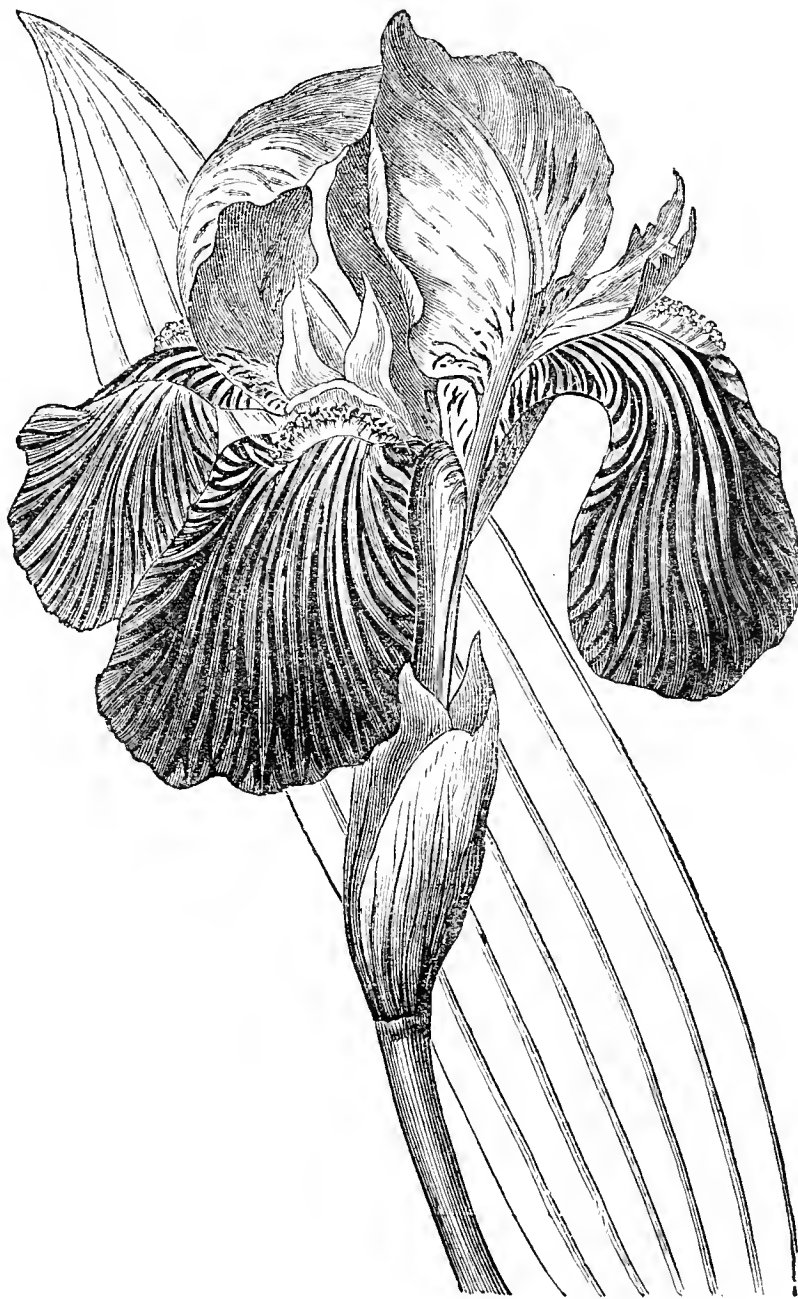


Fig. 37.—*Iris squalens*.

original form, though some much more richly coloured varieties are now in commerce, the standards being various shades of yellow, and the falls crimson or purple veined or mottled in a very diverse manner. The peculiar tinted *I. lurida* takes its position in this group, but now so many brilliant Irises are known such as this can well be dispensed with in most collections, except where it is desired to have as many representative species as possible.

The *I. germanica* group includes several of the best in the whole Pogoniris section, the first-named alone being entitled to a high position amongst garden plants, and perhaps there is no other species in the genus that is so largely represented in town gardens, especially in the neighbourhood of the metropolis. The varieties, too, are now very numerous and beautiful, but as a selection was given some time ago when considering another section it would be unnecessary to refer to them again, and the type is so well known that it does not need description. Unquestionably it is a useful addition to any garden, fine bold clumps having a

telling effect in suitable positions during the short time that the plants continue in flower. Perhaps some readers may, however, not be aware that it has been known in England nearly three hundred years, most of the old herbalists having described or figured it. It is from the macerated flowers of this species that the pigment Vert d'Iris, Verdelis, or Iris Green is said to have been prepared. *I. sambucina* is principally noteworthy for the Elder-like fragrance its flowers possess, to which quality the specific name refers. The flowers are somewhat dull in colour, or as the author of the "Paradisus" observes, they "are of a pale or bleake colour tending to yellowness, shadowed over with a smoky purplish colour." The fragrant *I. neglecta* must not be omitted, for it and its varieties are general favourites wherever hardy flowers are cherished. In the typical form the standards are blue, the falls having a yellow crest and being veined with violet, but this is considerably varied in some forms. The only other species in the sections deserving special mention is the one represented in the woodcut (fig. 37)—namely, *Iris squalens*, one of the early-flowering kinds of moderate height, very easily grown, bright and pretty. The standards are yellow, brown, orange, or purple tinted, the falls being neatly rounded in form; crimson or purple of very rich shades, often prettily veined or netted with a dark hue on a light ground. In the one figured the veins were violet or purple on white, the standards being yellow tinted with purple. It is a charming species, and is now represented by many handsome varieties, of which a dozen good distinct forms could be selected.

The last group to demand notice is that of which the chief species is *I. florentina*, the violet-scented roots (Orris or Orrice) of which were formerly used in medicine, but are now principally employed in perfuming various articles for the toilet. The plant itself is a handsome one, the large white flowers having a fine effect in combination with those of darker hues, and therefore it is well worth a place in any garden both for its beauty and historical interest. *I. pallida* and the orange-scented *I. plicata* are both pretty, the former especially, of which over a dozen varieties are grown, including some beautiful shades of blue, purple, and crimson.

This concludes the brief review of the genus; and as an aid to intending growers, the following list will convey some idea of the order in which the principal species flower, commencing with the end of December, from which time till March, *alata*, *stylosa*, *reticulata*, *persica*, *caucasica*, *tingitana*, *Kolpakowskiana*, *Reichenbachiana*, and *iberica* come into flower, some of them often appearing in frosty and snowy weather outside; *reticulata* and *persica* being especially suited for culture in pots, and when grown in cold frames they are obtained in flower a week or more earlier than outside. During April, May, and June the bulk of the Irises are attractive, most of the section just described being at their best in April or May. Following these are the *Apogon* Irises, the strangely coloured Spanish Irises, the richly tinted English Irises, and finally the magnificent Japanese Irises, the now varied forms of *I. Kämpferi*, that often continue flowering until August, which may be considered the termination of the Iris season.

It may be well to remind amateurs that the present month is a very suitable one for planting the bulbous forms or dividing the rhizomatous kinds, but as the season is a wet one the work had better be completed as soon as possible.—L. CASTLE.

DEATH OF MR. CHARLES LEE AND MR. W. E. RENDLE.

It is with much regret that we have to announce the death of two well and widely known horticulturists which occurred last week—Mr. Charles Lee of Hammersmith, who died on Friday, the 2nd inst., and Mr. E. Rendle, who expired on the following day.

MR. CHARLES LEE.—The death of this gentleman was lamentably sudden. While driving in his chaise on his way to his country nurseries the horse became troublesome, and caused some nervousness and excitement that had a most melancholy result, for whilst Mr. Lee was sitting in the vehicle in the High Street, Hounslow, and giving some instructions to his coachman, he expired suddenly. On the following day an inquest was held at Crosby House, Hounslow, when Mr. Bullock, surgeon, said the cause of death was apoplexy, and a verdict was returned in accordance with the medical evidence. The deceased was head of the firm of Messrs. Charles Lee & Son. The business at Hammersmith, which is the head quarters of an extensive nursery trade, has been conducted by three generations of Lees, and Mr. Charles Lee was the representative of the fourth. On the retirement of Mr. John Lee, early in 1877, the deceased attained to the position that he occupied until his death. Although seventy-

three years of age Mr. Lee was remarkable for his activity and his great business capacity. He was skilled in his calling, hospitable, and kind; indeed, he was a fine example of a British nurseryman, and his death will be mourned by all who had the privilege of his acquaintance.

MR. W. EDGCOMBE RENDLE.—Mr. Rendle died at Eastbourne after a long and severe illness. He was borne on February 10th, 1820, at Compton Giffard near Plymouth, and was thus sixty-one years of age. His father was a nurseryman of repute, and established the Union Road Nursery, Plymouth. The deceased succeeded to this business in 1840, and shortly afterwards invented the tank system of heating, which for a time was somewhat extensively adopted. We are informed that Mr. Rendle was the first to publish descriptive catalogues of seeds and send them through the post all over the country, and also the first to introduce the artificial manure business in the west of England by shipping guano from Peru. About 1852 a large portion of his grounds were secured by the railway company, and shortly afterwards the gardens were used for flower shows, concerts, &c. In 1861 Mr. Rendle removed to London, where he was engaged in various mercantile pursuits. In 1868 he again turned his attention to the horticultural business, and invented some wall-protectors; and on this principle he erected structures for the Duke of Portland to the amount of £10,000. Eventually his system of glazing attracted the notice of the railway authorities, and the plan has since been applied to several large stations, the Westminster Aquarium, and large buildings in different parts of the country.



THE SEVENTH INTERNATIONAL POTATO EXHIBITION, to be held at the Crystal Palace on the 20th and 21st, under the patronage of the Lord Mayor, is expected to prove the most interesting of the series. The first International Potato Show was held in the year 1875, consequently the forthcoming meeting will be the seventh. Hitherto every succeeding year has witnessed an improvement both in numbers and in the selection of varieties and samples. The promoters are practical men, who, having put their hands to the plough, are not likely to look back.

— AS an example of the demand that exists for PYRETHRUM GOLDEN FEATHER and the mode adopted by growers who send large quantities into the markets, we cite the following passage from a communication recently received—"In one of the medium-size market-growing nurseries in the neighbourhood of the metropolis, one of the specialities is a supply of Golden Feather, which is provided in the following manner—Shallow light wooden boxes are employed specially manufactured, about 15 or 18 inches long, a foot wide, and 2 inches deep. These are filled with light soil, and the seed is sown at the present time so as to obtain the plants strong before winter. When of sufficient size and before they become crowded the young plants are pricked out, a hundred in each box, which are then placed in a cool house as near the glass as possible, so that sturdy plants are secured by March, at which time the greater portion is sent to market. It is said these boxes when ordered in large quantities cost about 1½d. each, and the highest price obtained for a box containing a hundred plants is 1s., which must leave a large margin of profit. The grower now referred to sends four thousand such boxes to London every year, and he says that had he the space to accommodate them he could dispose of twice that number."

— A SIDMOUTH correspondent will be glad if any of our readers can inform him how to destroy HORNETS' NESTS, of which he has two—one high up the brick wall of the garden, and the other between the laths and plaster and brick wall of an outhouse.

— A RECENT visitor to Ireland sends the two following notes:—"One of the most historic and picturesque isles in the

Killarney Lakes, ROSS ISLAND, is covered with *Osmunda regalis*. There is about 10 acres of it in one spot ; no other Ferns are near. All seem to give place to their more princely and royal compeer. Many of the fronds are over 5 feet high."

— "IN the same place, called THE MEETING OF THE WATERS, immortalised by Moore, near the old Bridge of Weir, the water is skirted with a fringe of *Osmunda regalis*, not very high, which here and there peeps out a bunch of common *Erica*, forming, as it were, one grand natural bouquet, which would be hard to imitate. The Killarney Fern (*Trichomanes radicans*) is becoming very rare."

— MESSRS. JAMES VEITCH & SONS have received from Mr. McLachlan an example of his strain of COCKSCOMBS, the head measuring 2 feet 9 inches from tip to tip, and 18½ inches in breadth. In richness of colour, too, the head was one of the finest we have seen.

— WE regret to learn that the veteran florist and well-known raiser of Carnations, MR. E. S. DODWELL, is compelled by ill health to remove from his present residence, 11, Chatham Terrace, Larkhall Rise, Clapham, S.W. His surplus Carnations and Picotees, including unbloomed seedlings, also his garden appliances of various kinds, are offered for sale, and must be disposed of early in October.

— MESSRS. CLAY & LEVESLEY of 174, High Street, Homerton, desires us to state that, in order to facilitate their expanding business, they have erected offices at their works, Temple Mill Lane, Stratford, London, E., where all communications should be addressed.

— IN reference to the recent MANCHESTER INTERNATIONAL SHOW, Mr. Bruce Findlay informs us that on Saturday the 27th ult., when the weather proved bright for a few hours, about fifteen thousand persons visited the Show, the total number being about 40,000, which, considering the very unfavourable weather that prevailed during the greater part of the time, was a much larger company than could have been expected. We learn that medals were awarded to Messrs. Leech Bros. and Hoyle of Manchester, for the best mowing machine and the best garden seat. We are also informed that Messrs. R. Halliday & Co. of Manchester were awarded the gold medal for general collections of hothouses, frames, boilers, &c., not Mr. R. Holiday, as stated in the report.

— MR. CHARLES TURNER of Slough announces that he intends exhibiting a LARGE COLLECTION OF DAHLIAS AT SOUTH KENSINGTON next Tuesday. All the chief sections will be well represented by selected varieties.

— "IN the Botanic Gardens, Belfast," writes a correspondent, "is a *BOUGAINVILLEA GLABRA* that fills a curvilinear house, 30 feet by 20 feet. It is trained on a wire trellis. When in full bloom, as it was at the time of my visit, it is very handsome."

— THE same correspondent observes—"At KILLARNEY HOUSE, the seat of the Earl of Kenmare, the gardens and pleasure grounds are undergoing most extensive alterations and improvements. Miles of walks are being made ; new carriage drives in every direction, adding much to the charm of the lakes, the resort of so many visitors during the summer. Rhododendrons and Pines grow very freely. The extent of the planting may be judged from the fact that seedling trees sufficient to plant over 4 acres of nursery ground are bought every year. These are planted out the following year in their permanent quarters. The whole is under the charge of Mr. Kelly, who, in addition to his abilities as a general gardener, seems to be skilled in the art of landscape work."

— WE have received particulars of the following recent

GARDENING APPOINTMENTS—Mr. R. Billiald, late foreman at Leighton Hall, Welshpool, succeeds Mr. Salter as gardener to A. Sillem, Esq., Laurie Park, Sydenham ; Mr. John Bottrell, late foreman at Trentham, succeeds Mr. Harris as gardener to Lord Vernon, Sudbury Hall, Derby ; Mr. Thomas Hill, late foreman at Brodsworth Hall, Doncaster, succeeds Mr. Woolley as gardener to H. Berens, Esq., Sidecup, Chislehurst ; Mr. Henry Downing, recently gardener to Lord Huntingfield, Heveningham Hall, Yoxford, succeeds Mr. Smith as gardener to A. Brassey, Esq., Heythrop Park, Chipping Norton ; Mr. H. Wilson, recently in the service of J. E. Barton, Esq., Prescott House, Stourbridge, as head gardener, succeeds Mr. Downing in the same capacity to Lord Huntingfield, Heveningham ; Mr. Alexander Todd, late gardener to H. Miles, Esq., Ham Green, Bristol, has been appointed to a similar position in the service of J. Theobald, Esq., The Bedfords, Havering, Romford, Essex ; and Mr. R. H. Taylor, late gardener at Kingwell Hall, Bath, has been appointed gardener to James Watson, Esq., Langley House, Slough.

— IN the course of Sir John Lubbock's excellent address at York on the opening of the Jubilee Meeting of the British Association for the Advancement of Science, he made the following remarks upon the ALTERNATION OF GENERATIONS, which are not devoid of interest to horticulturists :—"It has now been shown by Bassett, and more thoroughly by Adler, that some species of insects are double-brooded, the two broods having been considered as distinct genera. Thus an insect known as *Neuroterus lenticularis*, of which females only occur, produces the familiar Oak-spangles so common on the under sides of Oak leaves, from which emerge, not *Neuroterus lenticularis*, but an insect hitherto considered as a distinct species, belonging even to a different genus, *Spathogaster baccarum*. In *Spathogaster* both sexes occur ; they produce the currant-like galls found on Oaks, and from these galls *Neuroterus* is again developed. So also the King Charles Oak Apples produce a species known as *Teras terminalis*, which descends to the ground and makes small galls on the roots of the Oak. From these emerge an insect known as *Biorhiza aptera*, which again gives rise to the common Oak Apple. It might seem that such inquiries as these could hardly have any practical bearing. Yet it is not improbable that they may lead to very important results. For instance, it would appear that the fluke which produces the rot in sheep passes one phase of its existence in the black slug, and we are not without hopes that the researches in which our lamented friend Professor Rolleston was engaged at the time of his death, which we all so much deplore, will lead, if not to the extirpation, at any rate to the diminution, of a pest from which our farmers have so grievously suffered."

— THE following observations upon DIMORPHISM IN PLANTS in another portion of the President's address are noteworthy—"It had long been known that the Cowslip and Primrose exist under two forms, about equally numerous, and differing from one another in the arrangements of their stamens and pistils ; the one form having the stamens on the summit of the flower and the stigma half way down ; while in the other the relative positions are reversed, the stigma being at the summit of the tube and the stamens half way down. This difference had, however, been regarded as a case of variability ; but Darwin showed it to be a beautiful provision, the result of which is that insects fertilise each flower with pollen brought from a different plant ; and he proved that flowers fertilised with pollen from the other form yield more seed than if fertilised with pollen of the same form, even if taken from a different plant. Attention having been thus directed to the question, an astonishing variety of most beautiful contrivances have been observed and described by many botanists, especially Hooker, Axel, Delpino, Hildebrand,

Bennett, Fritz Müller, and above all Hermann Müller and Darwin himself. The general result is, that to insects, and especially to bees, we owe the beauty of our gardens, the sweetness of our fields. To their beneficent though unconscious action flowers owe their scent and colour, their honey—nay, in many cases their form. Their present shape and varied arrangements, their brilliant colours, their honey, and their sweet scent, are all due to the selection exercised by insects. In these cases the relation between plants and insects is one of mutual advantage. In many species, however, plants present us with complex arrangements adapted to protect them from insects; and within the last few years Darwin, Hooker, and others have shown that many species have curious and very varied contrivances for supplying themselves with animal food."

BEDDING PLANTS AND THE WEATHER.

ALTHOUGH, perhaps, of secondary importance, it is, to say the least, very annoying to see the labour of many months not merely spoilt but positively rendered unsightly by the continued prevalence of wet weather, and this, too, at a time when many of us are most anxious to have things at their best. The start made in the first instance was not very encouraging, as many of the more tender kinds were much injured by the late frosts; next, the long spell of dry weather militated against many kinds; and now, when everything was beginning to brighten, comes the "damper." The result, with a few notable exceptions, such as *Violas*, *Verbena venosa*, and *Begonias*, is the absence of bloom, especially in the case of *Pelargoniums* and *Petunias*, and unusual and unwished-for vigorous growth in the case of *Lobelias*, *Ageratums*, *Verbenas*, and *Heliotropes*, the whole presenting more the appearance of breaking-up time than August. This, no doubt, is the general experience, though perhaps those in more open and drier positions do not look so woe-begone as in our and other cases, where the gardens are hemmed in with trees and otherwise sheltered, thus inducing a less sturdy and floriferous growth.

My object, however, in penning these lines is not because I am in a grumbling humour, but more especially with the intention of directing attention to the carpet beds, which in our case are the only bright spots in the general desolation. Carpet beds we were bound to have; and although at one time I begrudged the time and space necessarily devoted to the propagation and putting out the plants, I am now very glad I carried out my employer's wishes to the fullest extent possible. The comparative superior attractiveness of the carpet beds, ordinary as they certainly are, was apparent some time since, but was most strikingly so on my return from a week's trip in the midlands. Among the various plants employed in these *Pyrethrum Golden Feather* was the only kind to fail, these having damped off largely. *Lobelias* I seldom use in carpet beds. *Echeverias* of sorts, *Pachyphytons*, *Kleinias*, *Mesembryanthemums*, *Sedums* in variety, *Coleuses*, *Iresines*, and *Alternantheras*, all appear uninjured. Of the latter, and which are really indispensable, *A. spectabilis* is the brightest in colour—a very effective rich crimson; and *A. paronychioides aurea*, a comparatively scarce variety and a great favourite in Hyde Park, of which I fortunately had a good stock, is also decidedly effective, being bright yellow in colour and of neat habit. *A. paronychioides major* is also well coloured, but the same cannot be said of *A. paronychioides*. To these varieties I hope next season to add *A. versicolor grandis*, this being vigorous in growth and rich in colour, and therefore suitable for filling-in central figures.

It must not be inferred from these brief remarks I am an enthusiast on the subject of carpet beds. On the contrary, I would reduce the number of these in many gardens, turf over all elaborately planned flower gardens, and disperse a few plain beds about the grounds, whether this be strictly in keeping with the surroundings or not. Some of these should then be filled with carpeting plants, both because agreeable to employers' wishes and also because most pleasing to the generality of visitors, of whose good opinion I am not yet disposed to affect indifference. There is no disguising the fact that carpet beds are the first to be attractive and the last to succumb to the effects of unfavourable weather whenever experienced.

MESEMBRYANTHEMUM PROPAGATION.—In my remarks on "Autumn Propagation of Bedding Plants," page 171, I omitted mention of *Mesembryanthemum cordifolium variegatum*, and as this is deservedly a popular bedding plant I will now rectify the mistake. The cuttings of these in common with other plants of a similarly succulent nature will, if subjected to a close moist atmosphere and shaded, invariably damp off. Our plan is to fill well-

drained 5 or 6-inch pots with light sandy soil, and to dibble in the cuttings thinly. They are then placed on a shelf exposed to the sun in a heated house, and no water given till the cuttings are seen to be freshening up or are callused. To water them before the cuts are healed would undoubtedly result in a bad strike. I ought perhaps to state the cuttings are about 3 inches long. Many kinds of succulents may be placed on a shelf till the cuts are healed, but the *Mesembryanthemums* would curl, thus rendering it impossible to dibble them in. An ordinary stove temperature is suitable for wintering them, and they will not require much moisture at the roots; still less must be given if the attempt is made to keep them in a cool house.—W. I. M.

MR. A. PETTIGREW.

As both gardeners and bee-keepers have frequently requested us to publish the portrait of Mr. Pettigrew, who has for many years been a contributor to our gardening and apiarian columns, we submit what to a great number of visitors to the Manchester Show will be a recognisable likeness. We insert this in our gardening columns, because, as will be seen by the following autobiography, Mr. Pettigrew is at least as much a gardener as an apiarian, and what he has written has been intended especially for the perusal and benefit of young gardeners, who may presumably derive some useful lessons from a long, varied, and not unsuccessful career.

AN AUTOBIOGRAPHY.

Though fully convinced that biographies and autobiographies are, generally speaking, imperfect, I have, in a moment of weakness, consented to give a short account of myself in the pages of the *Journal of Horticulture*. At once let me say that it is a hard task for me to think about, a difficult work for me to perform.

Some time after the battle of Waterloo I first saw the light in the village of Carlisle in the centre of Lanarkshire. My father was from the age of twenty to thirty a common labourer, and it may be safely stated that during those years he was the most advanced and most successful bee-keeper in Great Britain. During those ten years he saved, as the results of bee-keeping, £300 or £400, wherewith he bought the "Black Bull Inn" and commenced the business of selling drink. The surroundings of my early life were, therefore, disadvantageous. I had to live in an atmosphere not favourable to the growth of moral feelings or tending to give direction to enlightened pursuits. As I grew up I disliked nothing so much as school lessons, and was a great dunce, almost always at the bottom of the class. When I was about eight or ten years of age my father became a butcher, and sold beef and mutton as well as whiskey, and I assisted in the business. Thus my early days were spent. My father continued to keep bees, and his success encouraged many around him to do the same. Ever since his day (he died in 1843), and during his time, bee-keeping has been a source of pleasure and profit to many working men in Carlisle and the adjoining parishes. The bee-keepers there now are numerous and successful, and the annual yield of honey is satisfactory. In early life I imbibed my father's love of bee-keeping, and learned all he could teach me, and eventually the management of his bees was left to me.

When about the age of eighteen I went to Carstairs House to learn gardening, paying £5 as an apprentice fee. During my three years there I was permitted to dig, mow, and to do the routine work of the gardens, but no encouragement to read and study was given me. My first master at Carstairs had been head man for fifty-six years. He had three apprentices at a time, and was not satisfied with having their £5 fees, but he kept 6s. a week of their wages. This was discovered, and the old gardener was dismissed on a pension of £20 a year. He died in a few weeks after. It is now forty-six years since I went to Carstairs, and I look back with regret to the three years I wasted there, chiefly by my own folly and partly by the want of interest on the part of my two masters.

I left Scotland a conceited young man. Arriving in London in the beginning of 1839 I was sent by Mr. Hugh Low of Clapton to Lord Mansfield's garden near Hampstead, and there I found young men—apprentices of nine months' standing—that knew more of gardening and possessed more intelligence than I did. This discovery was healthful and stimulating. Fortunately for me "Cobbett's Advice to Young Men" fell into my hands about this time. Opportunity and good advice it gave me—the first advice I ever had. It made me thoughtful, and induced me to study English grammar, so that I could speak in a passable manner. Before I saw this book I could not put three sentences together correctly. I owe much to Cobbett's "Advice to Young Men" and his "English Grammar," which latter book is meant to teach the sailor and ploughboy how best to use their mother tongue and speak correctly. That was the turning point of my life. I began to study horticulture in books as well as in the garden, and read the best writers on the subject. My desire for knowledge increased. My evenings were spent in reading scientific works on gardening and farming. The latest works on chemistry, physiology, and natural philosophy were greedily read. Theatres and public houses were neglected. Two years of "my glorious youthful prime" were spent but not wasted at Hampstead. I was fortunate in know-

ing Mr. William Thomson in Scotland, who afterwards took charge of a large garden establishment near Barnet. I left Hampstead to serve under Mr. Thomson at Wrotham Park, and there I spent four happy years as his foreman. I owe a great deal to Mr. Thomson of Clovenfords—more to his first wife, who was an excellent woman and interested in my welfare.

In 1844 I commenced writing for the press, and began to think I was qualified to take charge of a gentleman's garden. Mr. Thomson commended me to the notice of Dr. Lindley, who sent me to serve a gentleman in Yorkshire. Though there was a disquieting element in this situation I resolved to bear it, serve the gentleman to the utmost of my ability, and stay at least three years. The gardens were not

walled, the house servants knew well the best fruit, the housekeeper was a great favourite of my master, and he allowed her and her friends to take what fruit they liked. This to me was the disquieting element of the place. My predecessor on leaving the place told me what would happen. One Saturday night at ten o'clock I caught a housemaid cribbing an apronful of Aprieots. One year some Ribston Pippins were taken. My under gardener was suspected, and my employer would not listen to my pleadings on his behalf, and caused me to dismiss the best man that ever served under me. I did not engage another to take his place, but gave my employer notice to leave myself, and I did the foreman's work till I left the situation.

I returned to London, whence I was sent to Manchester to serve



Fig. 33.—MR. A. PETTIGREW.

Edward Loyd, Esq., banker, of Cheetham Hill. The situation was a comfortable one, and my employers exceedingly kind. Not a word of discontent was ever uttered by employers or employed. There I married and there my family was born. Owing to the long illness of my wife the household expenses were very heavy, greater than my salary could meet, and I told my employer that the considerations of health constrained me to think of seeking a change of climate. He would not, however, accept my resignation, said he wanted to find a house and garden in the south for himself. At last he consented to my going if I would find a gardener for him. This was done, and I went back south to fill a situation in Middlesex, in which I did not stay long. Mr. James Veitch of Chelsea then sent me to serve a gentleman in County Down, Ireland, in the joint capacity of

land steward and gardener, and we got on well, and had everything in good condition. My employer, however, resolved to have both a gardener and land steward, and I was offered either of the posts. I preferred giving my employer two months' notice, very much to his surprise and regret. He afterwards asked me to continue as I was, and promised to let me have the joint situation for life.

Returning to England I was engaged to serve a nobleman in Oxfordshire. This situation was entered on with a determination to make it my last, for as I had not failed to please other employers I would please here too. Fever entered my house and cut down my eldest boy: this frightened the lady I served so much that she speedily sent us from the place. I then resolved to take no other situation as gardener, but to commence business as a nurseryman

somewhere in England. After two months' search we found a field at Rusholme near Manchester, which we rented, and there we pitched our tent. We know that there is in this world a living for everybody who likes to go out to fetch it. I now became my own master, and this I liked very much, for I am somewhat afflicted with impatience under restraint. In my nursery at Rusholme I built a dwelling-house and greenhouse, worked hard for thirteen years, and did very well. My place at Rusholme was sold for building purposes, and I went to Sale, built a dwelling-house and three large vineries, and grew Grapes for eight years. This year I sold the place to Messrs. Stansfield, retired to Bowdon, one of the finest towns in England, most beautiful for situation, and here we shall keep bees, sell honey, and enjoy life as much as we can by helping others. And now I have to beg the reader's pardon for writing this long letter about myself. All I wanted to do has been simply to write for the benefit of young gardeners some lessons I have learned in my time. These lessons can be given in a second letter.—A. PETTIGREW.

P.S.—I may add that while an apprentice at Carstairs and a journeyman at Wrotham Park I kept bees in the woods and plantations, and when I became head gardener to gentlemen I managed their hives, wrote papers and treatises on the subject of bee-keeping, and noticed all that was going on in the apiaries around me. With one or two breaks while acting in the capacity of head gardener, I have managed bees for fifty years.—A. P.

NOTES ON CIRCUIT.

I IMAGINE that no Rose lover who had the pleasure of being present at the National Rose Society's Sheffield Show is ever likely to forget it. They have probably seen larger displays of flowers, they can recall stands which perhaps surpassed any that they saw there, and they may easily have recollected shows where the flowers remained longer in perfection, for with the thermometer at 80° they had but little chance in a tent; but there was a freshness and heartiness in all the arrangements which told upon everybody, and made them feel that the object of their affection was being honoured in a way that satisfied them of the pre-eminence accorded by universal consent to the queen of flowers. From the very first day that the idea was entertained the good people of Sheffield, to whom flower shows are a somewhat unusual sensation, entered into it *con amore*. The then Mayor (Mr. Alderman Tozer), Mr. Marshall the Secretary of the Botanical Gardens, Mr. Ewing the Curator, and last, not least, Mr. Charles Fisher of the firm of Fisher, Son, & Sibray, were the leading spirits of the enterprise, and the Committee of the Gardens readily entered into their plans. Everything was done ungrudgingly. A grand schedule was arranged, while what may well be called an additional one had been prepared by the townspeople. The cups, so liberally given, were no make-believes, but real, solid, substantial ones; and the prize for a seedling Rose offered by Messrs. Maples & Son, and which unfortunately was not won, comprised the most splendid set of garden tools I ever saw. By-the-by, this eminent firm have most liberally offered the same prize at the Bath Show of 1882. Two disappointments only can I deplore. One was that I failed in my attempt to see Ben Simonite's garden. I attempted it on the evening of the Show, but he was not at home, and after a weary tramp I had to abandon it. Of course I have been there, but it is always a pleasure to talk with so enthusiastic a florist, who is at the same time so thoroughly honest and genuine, working under difficulties which would discourage most men, and succeeding where few could hope to succeed.

It was a great comfort, after all the fatigues and anxiety of Sheffield, to be accosted on the morning of the Wirral (Birkenhead) Show—"I have had a message from the office to say you are not to trouble yourself about the Exhibition to-day, as I am here to report it;" for it is not an easy matter, after one has been engaged as I was, to have to take notes and then write off a report of the Show. I had reached Rock Ferry the day before, and there with my good friend Canon Hole we had somewhat rested from our labours. We saw in our host's (T. B. Hall, Esq., of Lambwood) garden the most abundant evidence of an enthusiasm in Rose culture which will account for the success he has already obtained—an augury, let us hope, of higher awards. He has built a house for Tea Roses which has succeeded admirably, and which has enabled him to show them in great beauty. His Hybrid Perpetuals were very vigorous in growth and gave fine blooms, although he had been hit hard by mildew. Roses abound, and I doubt not will soon overflow into the farm, where there is a grand piece of fine loamy soil, in which they would thrive. He encourages by his words and his success his neighbours to increase their growth of Roses. He can show what can be done in the windswept promontory of Birkenhead, and Rose houses are springing up around him. Canon Hole told him that it was all very well to say the new room he had just added to his house was a library. Nothing of the sort, he said; it was simply a room in which he

would set out his Roses the day before the Show. In fact, he said, all the arrangements of the place—cowsheds, piggery, poultry houses, &c., were only secondary. The grand point was how they could help forward his Rose culture.

I have mentioned what I saw and heard with regard to the Nottingham in respect to the low ideas of honesty entertained by the artisans there. Let me give an instance of a contrary character. "I want," said Mr. Hall, addressing Canon Hole and myself, "to introduce you to one of our most successful florists;" and forthwith brought forward a steady-looking bricklayer, who in a few words told us his history. "I was," he said, "one of the wickedest creatures on God's earth, and now, thank God, I am happy and comfortable." He had seen the folly of his ways. He took to gardening and a good wife. "And now," he said, "I should like to show you my little place." "Well," we said, "we must go up and see you. Is it far off?" "Oh, no!" he said; "but there, gentlemen, if you will come I'll stand the cab for you." This delightful, honest, and simple speech took us by storm; and although we did not accept his offer made in the overflowing of his heart, we went next morning to see him. He lives at Higher Bebington, and there in a small garden he has achieved an honest independence. He is the best bricklayer in this country side. He bought a piece of ground, on which he says he discovered a gold mine—a bed of building sand. He is a nurseryman too in a small way. He and his son have built their greenhouses, where he grows Fuchsias, bedding plants, Pelargoniums, &c., and after the plants are out Cucumbers. "They hardly pay," I said, "do they?" "Well, if I euts sixty or seventy dozen a week and gets 3s. a dozen for them, why it do pay," was the practical reply. Out of doors Pansies, Dahlias, and Roses were well grown; and as to the latter, pointing to where the excavation had been made for the sand—"There," said he, "is a nice spot, warm and sheltered, where I should like to put up a nice house for growing Roses, and shouldn't I like to beat Mr. Hall? but there, they wo'n't let me do it because I sells." He introduced us to his excellent hardworking wife, who quietly laughed at him and said, "Ah, John! there'll be no speaking to you; now that these gentlemen have come to see you the house wo'n't hold you." Whether it be the elevating influence of a garden, or that a man is what a woman makes him, or both combined, certainly the history of John Lee of Bebington is an illustration of what can be done, and may well encourage others to imitate his example. He was not a little proud when he took at the Wirral Show the second prize for a bouquet of Roses, in the construction of which I should imagine his excellent wife had a good share.

That same Wirral Show has been so fully reported in the columns of the *Journal of Horticulture* that it may seem superfluous to say anything at this distance of time, but still there are some few things connected with it that I would like just to allude to. As a whole it was not equal to the grand Show of 1880. There was not the quantity of Roses which made that Show so memorable a one, nor was there such a grand box as that one of thirty-six which Mr. Jowitt exhibited then; but this was easily accounted for. The intensely hot weather (would that we might have had some of it in August) had had such an effect on the Roses that the more distant growers—Messrs. Paul & Son, Mr. Cant, Mr. Hawtrey, and others—could not venture to come with theirs. A journey in such weather would have been disastrous. There was, however, a marked improvement amongst the local growers. Mr. Hall's flowers, especially his Tea Roses, were much in advance of those he had previously shown, and I was particularly struck with the zeal and energy with which the subject of Roses and Rose culture was discussed; and if only one-half of the projected plans is carried out we shall see a great impetus given to the Exhibition at Birkenhead. I would have given something to have seen the bloom of A. K. Williams exhibited by Mr. Jowitt when he cut it the day before; and I can well believe that, as he said, it was the grandest Rose he ever cut. It was fully 5 inches across, most perfect in shape and substance, and altogether a most wonderful flower. There was another in his stand—a bloom of Dr. Andry, which was certainly very remarkable, so much so that several Rose-growers questioned whether it could be of that variety. There was, however, no doubt about it, and this judgment was confirmed by a lady whom I cannot but think about one of the best judges of Roses I ever met—Miss Watson, the very able coadjutor of Mr. Prince; but I do not think that anyone ever saw this fine old Rose shown in such form. Mr. Cranston's new Rose Mrs. Jowitt was shown by him in excellent form, and promises to be a very grand and useful Rose. It seems to be constant and of a very vigorous constitution.

In one thing I was certainly disappointed—the attendance of the general public. The day was fine, the place of meeting convenient, and one might naturally have expected a large concourse

of people; but perhaps we are too sanguine in this respect. After all, Roses have principally their charm to those who really love the flower: to the great mass one Rose is as another. Our hope must be that the public taste may be educated, that a more general appreciation of the flower may follow, and then a larger concourse of people to see them. Those who are endeavouring to foster this taste, as our friends at Birkenhead are doing, are worthy of all commendation, and I trust will have their reward in an increased public appreciation of the beauty of the Rose.—D., Deal.

TROPÆOLUM SPECIOSUM.

WITH the above I have succeeded far beyond my expectations, having had it well established and in flower in two places—at the foot of a north wall, and in a north-west angle near a rain-water tank: in both these positions it is doing remarkably well. I also planted two other patches at the foot of a south wall and west wall. The one near the south wall is barely alive, while on the west wall it is doing better, and was the first to flower; it is quite evident it is at home in a cool, moist, shady position. Through ignorance I planted the roots too thickly, and now they are established I hardly like to disturb them. My supply of roots came direct from Douglas Castle in a biscuit tin this last spring. From what I have seen I do not think it would be a hard task for any nurseryman to establish it in pots as mentioned by your correspondent "J. W.," provided he could obtain a good supply of healthy roots such as I received from Douglas Castle. I tried a few roots in a pan in case those planted outside failed, and they grew and have succeeded fairly well. It would be wise to plunge the pots in ashes or cocoa-nut fibre at the foot of a north wall.

That it is a beautiful climber is beyond a doubt, and seen as described in Scotland it must be a sight never to be forgotten. I intend to try and induce it to grow with *Tropæolum peregrinum*, as that does well with me. I have it growing on arches made of long hazel poles over the kitchen garden path, where it has a good effect.—A. J. SANDERS, *Surrey*.

RECOLLECTIONS OF MANCHESTER.

GARDENERS, amateurs, and all, however slightly interested in horticulture, who visited the late great Show at Manchester, must now be in possession of many pleasing recollections of the grandest garden Show England has seen. The three days we spent at it will ever be periods agreeable to our recollections. The marvellous productions of fruits, flowers, and vegetables must have made us happier and wiser men—happier in observing such unmistakable evidence of the care devoted to the objects of our chief attention, and wiser in the varied lessons which might in many ways be gathered from them. Apart from all this, too, the meeting was a true gardeners' one, where old acquaintances were warmly greeted and new friends firmly made. Of the Show itself too much good cannot be said. Nothing whatever was wanting except a bright sky and a dry atmosphere, and even the opposite of these lost their depressing influences to a great extent. Amongst gardeners it was said there was nothing there of a startling character, but collectively the uniformly high quality of the exhibits had no parallel. In visiting gardens and shows we may often see a few things well done or well shown, and much inferior produce, which detracts from that agreeable impression of general satisfaction. But there was nothing of the kind felt at Manchester. Of the fruits, plants, vegetables, or cut flowers it was difficult to tell which to admire most.

In giving a few notes we will, however, first refer to the fruit. As is now pretty well known, the large collections, winners and losers, were of high merit; a really bad dish, far less a bad collection, could not be seen. The positions gained by Mr. Coleman were ungrudgingly admitted to be deserved; his Grapes, Pines, and Peaches were especially fine examples of culture at home. Care in transit and taste in "setting up" Grapes, Pines, and Peaches were the leading features of all the minor collections, and it was observable that other black Grapes were better finished than Black Hamburgs. Of Grapes the great centre of attraction was the collections competing for the prizes offered by the General Horticultural Company (Mr. John Wills). Here the competition was what an aspirant from the Edinburgh neighbourhood termed "fast and furious." Where the champion might come from was a matter of much speculation. On the forenoon of the 23rd suspicion rested on the Scotch east coast, a little beyond Berwick-on-Tweed; later on it was circulated that something strong had come from the north of the Tay, while after sundry peeps under the cautiously lifted lids of the long boxes a heavy lot was said

to have come from the temperance side of the Border; but few had any idea that all the time the most dangerous lot were resting under the table on the fancy-covered stands which figured so conspicuously at the International Show in Manchester in 1872. That Mr. Hunter was clearly first all noticed before the tents were cleared for judging, and much satisfaction was expressed at this gentleman being again in his old position. The Lambton Grapes were certainly highly finished, and the handsome size of the bunches added much to their merits. There was no disputing about the justice of positions in the Grape classes, excepting, perhaps in the Veitch Memorial class for three bunches of black Grapes. Muscat Hamburg was the favoured kind here, and some—a very few—thought the Madresfield Court should have been preferred. Both were fine, and we are quite prepared to give our vote in favour of the decision of the Judges, as we never saw a finer lot of the Muscat Hamburg. Although the berries might have been thought small the bunches were really grand, and their bloom and finish perfect. Nothing striking appeared in the new Grape class. The first-prize kind is not distinct enough in appearance, but is said to be of good flavour. Many Pine-growers had evidently kept away their fruit under the impression that the competition would be strong.

The Peaches were highly satisfactory in numbers, size, and colour. Apples and Pears, too, were not inviting in ripeness, but otherwise no fault could be found with them. In the fruiterers' competition the first-prize lot belonging to Mr. Mason of Manchester was admirable in quality and extent, and its arrangement was unique. It occupied about 30 yards of a wide table, and every dish was as near perfection as possible; indeed, the home-grown Pines, Black Hamburg, Muscat, and Duke of Buccleuch Grapes, were equal to any of the prizewinners.

In the plant department it was difficult to find anything bad enough to condemn, all being so evenly good that exception, could hardly be taken to any of the specimens. As usual the group from Messrs. Veitch of Chelsea was excellent, every plant being choice and faultless in culture. We have seen Mr. B. S. Williams exhibit larger specimens, but never more promising. It is not often that we see the Edinburgh nursery firms venture beyond the boundaries of their own borough, but it is evident there is enterprise in some of them, as Messrs. Ireland & Thomson of Craigleith entered in some of the most popular classes, and were very successful, especially with Crotons and new plants. The Crotons from Edinburgh which gained the first prize in their class were the finest we have seen for many a day. In health they were luxuriant, in colour brilliant, and altogether most creditable to the firm who sent them. Croton Thomsonii, which gained the prize for the best new fine-foliage plant, we preferred to any of the new forms shown from France. For artistic arrangement and a large quantity of healthy clean little plants of the choicest kinds nothing surpassed the group from the General Horticultural Company. Here Crotons and *Draeenas* were used in great profusion to embellish a gradually inclining bank of great extent with grand effect. *Dipladenia hybrida*, which gained the Veitch Memorial prize for the best stove plant in flower, is, we were informed, much hardier than the other varieties. This will be good news for many who have not enough heat to grow the others satisfactorily. In speaking of the Veitch Memorial prizes many there could not understand why one or more of the ten £5 prizes were not given in the vegetable classes. As these prizes are supposed to encourage and reward the production of the most valuable occupants of our gardens vegetables should certainly be included, and we hope they will next time they are offered.

Since the last great Show at Manchester Tuberous Begonias have made great strides, and many of them were tellingly used in the groups of plants competing for effect. Of Roses those in pots from Messrs. Paul were the grandest lot that the Manchester people have seen in the autumn. They were chiefly Teas, and the number and quality of their blooms were surprising. Amongst the cut flowers we met our friend "D., Deal," so we expect that every impression worth having will be given to readers of this Journal. We were especially pleased with the bouquet and single Dahlias. Of the latter there was a magnificent display from Messrs. Ware and Cannell.

Of the vegetables much might be said, as their numbers and quality have never been surpassed. New varieties, such as Culverwell's Giant Marrow Pea, Sutton's Marvel Cabbage Lettuce, Carter's Jersey Lily Turnip, the Reading Exhibition Sprout, and many others are sure to be frequently seen again. The Potatoes were quite a show in themselves, and indicated abundant crops all over the country. Onions, too, were remarkably fine; so fine, indeed, were the spring-sown ones that we heard one of your poultry writers remark that he thought some of them, like many

spring chickens, had been "hatched last autumn!" Tomatoes were disappointing, about the worst in the Show being awarded the first prize. Thus far I had written when our Journal of September 1st came to hand, and the report there is so full and just that I will not seek to take up more of your valuable space, except to say that the excellent likeness of Mr. Bruce Findlay was a pleasing surprise, and probably would be the same to thousands of your readers.—WELSHMAN.

BEFORE the Manchester Show is forgotten in the hurry of everyday routine I should like to note some few facts which struck me as worth remembering. First, by way of protest, let me point out the difficulty (to put the matter in as easy an aspect as possible) there was for gardeners to inspect the produce in the crush of visitors which thronged the tents after the Exhibition was opened. I went chiefly to see what hints I could gain that would be useful to me in my daily garden work, and had I not been so fortunate as to take my notes before that crush I am afraid my journey would have been fruitless. The Edinburgh "Internationals" are the only shows conducted for the benefit of gardeners. There gardeners of all classes are admitted at a uniform rate of 1s. for an hour or two before the general public. This is as it should be, and what the other managers ought to follow.

Among the plants, what I most admired was the collection of Crotons so artistically arranged by the General Horticultural Company, and the first-prize group of Mr. C. Smith, gardener to J. Rylands, Esq. This group struck me as being the most effective in the whole Show, not excepting the above-mentioned group of Crotons. It was certainly the embodiment of an attainment which any gardener might be proud to copy.

Turning to the fruit tent, the most remarkable object there was the display of Grapes. True, one might criticise the greenness of the Muscats and the general unevenness of the various collections; but that aside, there was no difficulty in finding very many fine examples of Grape culture. The six varieties from Mr. Elphinstone, Shipley Park, were really superb examples, the finish being perfect. The bunches were not large—just a good family size. I thought more highly of these than any other collection in the Show. Then remarkably fine were the Muscat Hamburgs from Mr. Boyd of Falkirk; and as a finish to the whole, what could surpass the magnificent display of fruit which Mr. Mason of Manchester set up? It had only one fault—the Pine Apples and Grapes were so fine as to put the other fruits entirely in the background. Few of the other fruits were above mediocrity, the Apricots being especially poor. I was interested in Peaches and Nectarines, and found many of the finest fruits old and well-tried sorts. Of Peaches Stirling Castle, Royal George, Violette Hâtive, Bellegarde, Grosse Mignonne, and Noblesse were fine; Princess of Wales was extra large; and fine dishes of Chancellor and Mr. Gladstone, varieties which I had not before seen, were also staged. The finest Nectarines were Lord Napier, Pitmaston Orange, Prince of Orange, Victoria, Violette Hâtive, and Elrue.

Amongst the abundant vegetables Snowden's Nonesuch Peas, shown by Mr. Snowden, Thirsk; and Livingstone's Perfection Tomato, shown by Mr. Iggulden, were all I noted out of the common, unless perhaps it was in the judging. The cottagers' Celery was very fine. Florists' flowers are obviously at a low ebb near Manchester; a good many were shown, but obviously they are only advancing to better things in this class of flowers. Some of the finest Show Pansies I have seen this year were staged, but these came from the north, and anything up to the mark of special merit came from a great distance. But even amongst these I found something worth drawing attention to; these were the fine Verbenas from Messrs. Cannell & Son, and the Zinnias from the same firm. They had also a strain of Cockscombs superior to anything I have seen. In the stand of single Dahlias from Mr. Ware, besides older sorts were attractive varieties well worth a place everywhere; these were Vivid, Mauve Queen, and Hector.

One of the most interesting departments in these large exhibitions is that devoted to implements. In this department I thought highly of the "Allerton Priory Boiler." This is a flued saddle; in principle it is the same as the two at Norris Green, the difference being that in the latter the smoke passes through tubes and the boiler is rivetted. In the former two flues are used in place of tubes, and the boiler is welded. Both are good, though I should prefer those of the Scotch firm. The only other articles I considered better than we have been used to in this department were the frames from Foster & Pearson. Any gardener who has the offer of 100 feet or more of these should most certainly accept them. I would prefer the 8 feet wide size and build a brick foundation for them; they may be very efficiently heated. Their system of substituting iron instead of wood for the rafters of vineries and greenhouses is also a plan worth following.

Durability and lightness are very cleverly combined.—R. P. BROTHERSTON.

SANDY AND DISTRICT HORTICULTURAL SOCIETY.

FINE weather and Sandy Show have become proverbially concurrent; and the thirteenth annual Exhibition, held on Friday the 26th ult. in the beautiful grounds of J. N. Foster, Esq., Sandy Place, following the most miserable day in harvest probably on record, was no exception to the rule, and, taking advantage of the agreeable change, many thousands of visitors attended the Exhibition. Favoured with sunshine and under the auspices of an excellent executive, increasing prosperity has attended the efforts of the Society; and Sandy has gradually emerged from an infantine village show to become the heyday and holiday, not only for Bedfordshire, but also for a large portion of the neighbouring counties of Hunts, Cambs, and Herts.

The objects of the Society include the advancement of horticulture—the staple of the district, bee culture, poultry, birds, and agricultural produce; and some idea may be formed of the work and responsibility falling upon the staff from the number of entries for vegetables alone, which exceeded eleven hundred. Of course in a market-gardening locality vegetables are an important feature, and at few shows are they shown in such good form or so largely. An excellent display of these was made on Friday last, and scarcely less important were the departments of fruit and cut flowers. About twenty marquees and tents were erected on the ground, three of them, including one 100 feet long, being filled to overcrowding chiefly with vegetables and fruits. Plants, although not shown largely, were in very fine condition for the season, but at Sandy do not appear to the best advantage, as the antiquated, risky, and expensive lofty stage is still in vogue, and as the sides of the marquee are also utilised the narrow space left is totally insufficient to enable the crowds of visitors to compass the plants.

In the open class for ten stove and greenhouse plants in flower Mr. James Parker of Rugby took the £15 prize with very superior specimens, showing good health and excellent cultivation, but little novelty was observant. Mr. W. Rabbitt, gardener to Lieut.-General Pearson, The Hazells, Sandy, secured a very respectable second position. In the gardeners' class for six stove and greenhouse plants the first prize fell to Mr. G. Claydon, gardener to J. H. Aske, Esq., Woodbury Hall, St. Neots; whilst for foliage plants, Coleuses, and Zonal Pelargoniums Mr. Rabbitt, who is an excellent cultivator of the latter, was well to the front; and in the same class Mr. Tillbrook was first for six Ferns, including a very handsome Dicksonia.

For forty-eight cut Roses in the open class Mr. J. House of Peterborough was first and Mr. Laxton second, but the wretched weather of the previous "cutting" day allows little to be said in commendation. For the President's prize for twenty-four blooms the Rev. E. L. Fellowes, Wimpole Rectory, Royston, was first; and for a stand of twelve C. E. Cuthill, Esq., of Dorking, Surrey, took first place. The best amongst the newer varieties were Harrison Weir, Charles Darwin, and Louis Doré; but the noticeable feature in Roses, and a remarkable feature in the Show, was a stand of forty-eight blooms of Gloire de Dijon staged by Mr. Fellowes, but not for competition. These were shown in the cleanest and most beautiful colour and condition—not ragged, pink, overfull, and quartered as one usually finds the "Gloire," but the blooms, although large, were cupped, shell-petalled, and incurved, of a rich cream colour, nearly all being perfect exhibition blooms. Mr. Fellowes informed me they were grown on a wire trellis in the open air. Does not this teach us the true way of growing these pendulous Teas and other delicate-tinted Roses, such as Gloire de Dijon, Maréchal Niel, &c? Shade and shelter seem necessary, a loose and pendant habit being the natural and only suitable mode of growing them, instead of the erect and mathematical mode of nailing and training usually adopted. "Heads downwards" is evidently also the natural position of those glorious Roses, which are ill adapted for withstanding rain and hot sun. French Asters from Mr. Tillbrook, a successful grower of this flower, were very fine for the season, as also were Quilled Asters and African Marigolds from Dr. Swaine of the Arlesey Asylum. Dahlias are evidently not yet at their best, and were inferior to those usually shown at Sandy.

The table decorations were an unusual source of interest. For the first prize a very elegant table was laid by Mrs. Richardson of Sandy Rectory, who secured a cheerful yet well-toned effect by combining Plumbago and dark Coleus as a base for the border, the centre being proportionate and light; Tacsonia, Rhodanthe, and Zonal Pelargonium blooms being judiciously introduced. But perhaps a more successful or beautiful arrangement has rarely been attempted than the design of Mrs. and Miss Orlebar of Withington Rectory, which was formed entirely of wild flowers, berries, Ferns, and Grasses interwoven on an elegant wicker framework. This table, to which the second prize was awarded, is the only instance which I have seen of a satisfactory design in indigenous flowers, berries, &c.

Fruit was shown in large quantity, and upon the whole good. Excellent Grapes came from Mr. Tillbrook; from Mr. J. Day, gardener to Mrs. Seymour, Norton Hall, Daventry; from Mr. Shephard, gardener to T. Murpin, Esq., Great Staughton, Hunts; and Mr. Allis, gardener to J. Shuttleworth, Esq., Old Warden, who each secured prizes in different classes. The President's prize for the best collection of ten varieties of fruit fell to Mr. Rabbitt, whose collection

included Pines, good Black Hamburg and Muscat of Alexandria Grapes, Bellegarde Peaches, Stanwick Elruge Nectarines, and Jefferson Plums. For the collection of six varieties, Pines excluded, Mr. Day took the lead.

The President's prize for twelve varieties of vegetables was taken by Mr. G. Vines, gardener to H. Thornton, Esq., Kempston Grange; Mr. H. Facey, Goldington, coming in first for the eight varieties. For the collection of Potatoes, eight sorts, the Rev. J. D. Hawkesley, Arlesey Asylum, was first, and Mr. J. Richardson of Boston second. In the market gardeners' class Mr. R. Simpson, Arlesey, was first for the collection of Potatoes and also for the collection of Onions. For white Spanish Onions Mr. Laxton took the first place. Ridge Cucumbers were remarkably well shown, several of the exhibitors staging clean, straight, and well-coloured specimens upwards of 18 inches in length. The prizes for separate dishes of Potatoes were awarded for white kidneys, chiefly for Myatt's Prolific, International Kidney, and Paddy's Pride, a very large and somewhat coarse flat kidney of the White Elephant type. In round whites Schoolmaster was in almost all classes the predominant prizetaker. Amongst coloured kidneys Beauty of Hebron and Late Rose were prominently successful in the prize list, and Manhattan as a coloured round. Amongst other new sorts Suttons' Reading Hero and Fillbasket created a favourable impression, but as grown in the Girtford Garden the latter variety has, with the Champion and other vigorous late sorts, shown a tendency this season to grow out.

The Show was altogether most successful in all departments, the tent of the British Bee-keepers' Association being on the ground. The honey, too, was remarkably good.—T. LAXTON, Bedford.

SINGLE v. DOUBLE FLOWERS.

IN Mr. Brotherston's last contribution on the above subject he appears rather more concerned about having the last word than in treating me fairly, and as his remarks upon wild flowers verge on the infinite I leave the subject, in the meantime at least.

Mr. Hibberd must have a very short memory when he asserts that he in his lecture referred merely to "a mythical Caliban," which is only "an abstraction" and a "characterisation," and not to any "existing individual." He there stated, "There are now amongst us, even in the bright world of flowers, those who profess to be æsthetics, and who propose that we should undo and utterly waste the work of centuries, and allow Nature to assert herself according to the original pattern of things as on the third day. Yes; they dare to doom our double flowers to an ignominious oblivion, and they fondly hope we shall destroy our proper garden flowers, and plant in their places those that Nature cultivates so nicely in the woodlands and on the mountains," and so on. Mr. Hibberd now asks that we believe that "they" and "those" were nobody in particular, and this at a time when the subject of "Single v. Double Flowers" was being discussed, not in the Journal only, but elsewhere. And then to end by saying he only referred to a mythical personage, an "abstraction," &c.! Surely Mr. Shirley Hibberd is the incarnation of "abstraction!"—SINGLE-HANDED.

GROSSE MONSTRUEUSE DE LIPARI FIG.

A FEW years ago I received cuttings of a Fig under the above name; and although the fruit is of great excellence I am extremely doubtful if the name is correct; and on applying to two good gardeners my doubt is not removed, for one of them says the name is correct and the other says it is not. We have sent a fruit for your inspection, and shall be glad if you will settle the point.—F. R. H. S.

[The fruit was, as Figs usually are that we receive from a long distance, crushed beyond identification; but the accompanying figure and description will aid you in your object, and will bring a good variety to the notice of our readers. Fruits large, roundish-turbinate, much flattened at the apex. Skin light brown or chestnut, shading off to dark, and with dark-coloured ribs, with occasional dark spots, the whole covered with a thick bloom. Stalk short, thick. Eye large, closed. Flesh dull red, thick, juicy, and pleasantly flavoured. Habit of plant robust, and very prolific. A very meritorious variety, and suitable for cultivation either in the open air or under glass.]

COOLING'S NE PLUS ULTRA DWARF FRENCH BEANS.—In response to your question (page 209), I have grown this Bean in

pots during the past winter and spring. It is very productive, and has fine pods. It is in no way superior to Osborn's for forcing, but is quite distinct from Fulmer's. I do not think anyone will be disappointed by giving it a trial. Those grown in the open ground have produced an excellent crop of good-sized pods, and I have no doubt this new variety will give satisfaction to any who may grow it.—D. WALKER, Dunorlan.

SHADING CAMELLIAS.

I HAVE been much interested in the controversy on this subject, and I fully decided last year to give it a trial when the subject was similarly raised in favour of shade. I grow these plants in pots, and since I have employed shade they have improved in health, and the foliage is now nearly black; but when grown without shade, as I used to grow them, the leaves at the end of the season were rather yellow in colour. Perhaps one of the strongest points in your correspondent's remarks about shading these plants is, Will they do without shade when in flower? At this point Mr. Muir's assertions fall to the ground. If not shaded in spring when in

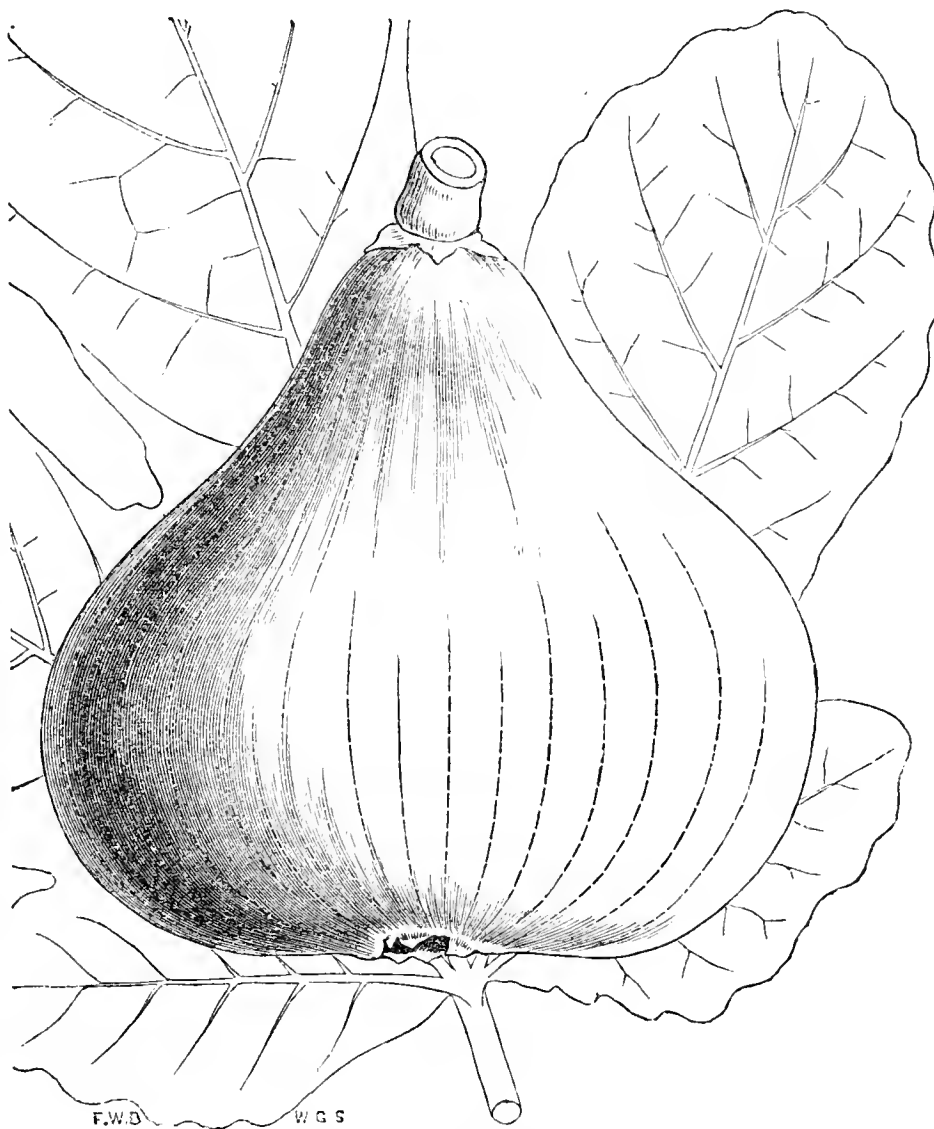


Fig. 39.—Grosse Monstrueuse de Lipari.

flower one day's sun is sufficient to take the colour from the flowers, and what good is a flower when its colour is gone?

The last statement on this subject from "R. P. B." rather puzzles me. Does he mean that vigorous growth is not needed in the successful cultivation of Camellias, or that as fine flowers are produced from a plant that grows weakly as from one that has vigorous growth and large dark green leaves of great substance? His statement appears to me much like staging a green Croton by the side of the same variety in good condition and well coloured. I think I know which would be placed first at an exhibition.

I must maintain, notwithstanding what "R. P. B." has said on this subject, that dark green glossy foliage is much to be desired in Camellias. I am proud of my few plants in pots, which have improved wonderfully in this respect since I shaded them, and my brother amateurs express a wish that theirs were of the same beautiful colour. Those who have only a few plants for their small greenhouses will be on the safe side when they shade their

Camellias judiciously, as Mr. Bardney advocates. Not only are the Camellias improved, but slight shade preserves the other flowering plants that are, or may be, blooming in the house at the same time. Pelargoniums and such plants when in flower used to fall quickly before I shaded, and now they keep their colour better and last much longer before falling.—AN AMATEUR.



KITCHEN GARDEN.

CABBAGE as a spring crop is one of the most valuable, as, though a constant supply throughout the year may not be indispensable, the lack of a good supply in spring and early summer would in most places be a serious drawback. As soon as the plants are ready transplant them at once in rows about 18 inches asunder, with the plants 15 inches apart, but those from later sowings will require more room, 2 feet between the rows and 18 inches apart not being too much. Attend to the plants from the August sowing in keeping them free from slugs, dusting whilst damp with quicklime, dry wood ashes, or soot; avoid keeping the plants too thickly in the seed beds. Winter Spinach will soon require thinning, which should be attended to before the plants become too large, allowing sufficient space between the plants to prevent damping-off in bad weather, keeping the surface soil between the rows well stirred. Take every opportunity in favourable weather to use the hoe amongst all growing crops, so as to prevent the necessity for hand-weeding. Thin-out autumn-sown Onions to about 3-inch distance apart, which will allow of every alternate plant being drawn in spring for early use as needed. Take up the main crop of Onions, exposing them for a few days before storing away in a dry cool room or on shelves, stringing or tying in bunches such as are available for that purpose.

As ground becomes vacant fill it with late plants of Coleworts, Endive, and Lettuce according to probable requirements. Any pits or frames at liberty should have Endive or Lettuce pricked into them for winter use, keeping them duly supplied with water if the weather be dry, not putting on the lights until there is likely to be frost. The Lettuces from a sowing made at the end of July, planted in frames now, will do much better than when deferred until the season is more advanced. Late Turnips should be moderately thinned so as to allow due development. Keep up a supply of small salading by sowing at intervals proportionate to the requirements. Radish seed must be sown on sheltered borders; and where sowing has been deferred of such varieties for winter use as China Rose and Black Spanish, the seed may yet be sown, protecting the plants in severe weather; they will afford good roots during severe weather, and more crisp than those taken up and stored. Select fine days for tying-up Cos Lettuces and Endive, also for earthing Celery. Any Potatoes in the ground should be lifted at once, except late sorts, which should not remain a day after the foliage shows disease spots. The haulm should at once be burned, instead of being allowed to decay on the ground or on the rubbish heap. Globe Artichokes should have all useless stems cut away, and all decayed leaves removed, so as to admit of light and air to harden them at the base. Remove the leaves from over the clusters of Tomatoes in order to advance the ripening process, cutting the most forward, and hanging them in a dry airy house, which will give the later-set fruit a better opportunity of maturing. A first planting of French Beans should be made in pots, 10-inch pots being most suitable; half a dozen Beans being placed in each, standing them as close to the glass as practicable in a house with a night temperature of 60°, and 70° to 75° by day. Osborn's Forcing is a suitable variety.

HARDY FRUIT GARDEN.

Wall trees should be examined now for the purpose of stopping such shoots on Pear, Plum, Cherry, and Apricot trees as have made secondary growth, pinching them back to one joint, so as to keep the spurs close to the wall and to allow of sun and air having free access

to them, so as to secure as far as possible the ripening of the wood. Extensions must be secured to the wall as they advance in growth; and the shoots of Peaches and Nectarines, also Morello Cherries required for next year's bearing, should also be secured with twigs, nailing or tying as may be expedient. Be careful not to have them too crowded. They should be so distributed that the sun and air can act freely on the foliage, as upon this depends the ripening of the wood and its fruitfulness another season. These growths should not be closer than 12 to 15 inches apart, keeping the sub-laterals pinched to one joint. The fruit of Peaches and Nectarines are now generally ripening, and will require attention daily. Later kinds require attention in turning the leaves aside or shortening them, so as to expose the fruit to the sun to give colour and flavour. Pyramid, bush, and espalier trees of Pear, Plum, Apple, and Cherry should be given, so far as the summer pruning is concerned, a final stopping and regulation of the shoots, attending to the gathering of Apples and Pears as they become ripe.

FRUIT HOUSES.

Peaches and Nectarines.—The fruit in the latest houses will soon be all cleared off, and to insure the proper maturation of the wood all shoots not required for next season's bearing or the extension of the trees should be cut out, so as to admit all the sun and air possible to those retained. The foliage must be kept free from red spider by thorough cleansing with the garden engine, syringe, or hose, well watering the inside borders, and where the lights are moveable remove them as soon as the wood is well ripened. The trees in the earliest-forced house will soon shed their leaves; the shoots may then be loosened from the trellis in order to have the house painted and otherwise thoroughly cleansed. Soil should now be procured and stacked for future use. Peaches and Nectarines do best in strong turfy loam, and if of a chalky or calcareous character so much the better; but if not, add to it a tenth of old mortar rubbish or pieces of chalk, and the trees with proper surface dressings will afford fruit of the finest quality. Where early forcing is contemplated the trees should be planted at the latest by the end of this month. The best Peaches for early forcing are Alexander, a new fine American sort coming in earlier than Early Beatrice, Hale's Early, A Bec, Royal George, Grosse Mignonne, Noblesse, and Stirling Castle. Those will give a succession extending over several weeks, but where there is a number of houses the three latter may be omitted from the earliest house. In Nectarines—Lord Napier, Advance, Elruge, and Violette Hâtive are good and reliable for early forcing.

Pines.—Suckers obtained from the summer-fruited plants will soon be ready for repotting. Shift the strongest plants into the fruiting pots, 10 or 11-inch, according to the variety, giving them a light position, and keeping them steadily growing through the winter months; these will start in May or June, affording a good supply of early autumn fruit. The remainder of the plants should be wintered in 7 or 8-inch pots, and be transferred to the fruiting pots so soon as ready in spring; and these, in conjunction with Smooth-leaved Cayenne and Charlotte Rothschild started as suckers last March, will afford a successional supply through the winter months, being aided by Queens and Jamaicas started with those already referred to in March. It will be necessary about this time to re-arrange the plants, especially those started as suckers last autumn, and which now have fruit swelling off. The plants that have completed their growth will start into fruit more readily if now subjected for about six weeks to liberal ventilation. Scarcely too much air can be given when the temperature exceeds 80°, that being a sufficient temperature also for the roots.

Figs.—The wood of the trees in the earliest-forced house is now ripening, and watering should be discontinued. Where the trees grow too vigorously it is a good plan to root-prune them and circumscribe the borders, making them only 3 feet in width. A good surface dressing may be given after the root-pruning, using rich loam with a little bone meal intermixed. If there be any doubt about the drainage it will be necessary to lift the trees when the leaves are falling, root-pruning and replanting in good soil. About a foot of brickbats with old lime rubbish screened should be employed for drainage, loam with about a tenth each of old mortar rubbish and road scrapings intermixed forming suitable soil, which should be

made very firm about the roots. With fresh compost as surface dressings, mulching and feeding with liquid manure, the trees will produce abundant crops. The trees in narrow borders need little pruning, whereas when growing in wide rich borders they grow luxuriantly and do not fruit satisfactorily.

PLANT HOUSES.

Stove.—Dipladenias required to flower early in spring should now be kept drier at the roots for a few weeks and then be cut back, giving them at the same time a thorough cleansing. When they have started into growth about half the old soil may be removed, replacing in the same pots in good fibrous peat. The young shoots as they extend should be trained on strings run up near the glass through the winter, and when advanced for flowering secure them to the trellis. Stephanotis intended for a similar purpose should have the shoots trained in the same way. Plants having completed the growth should be kept drier at the roots, only sufficient water being given to prevent the loss of the foliage. Started early in the year they will in a brisk moist heat grow and flower freely in a light position. Clerodendron Balfourianum that flowered early will be making strong growth, and should be encouraged by liquid manure during the present month, the growths ripening well later on with plenty of light and a diminished water supply. Plants of this, also Bougainvilleas and similar plants that have been in cooler quarters for flowering, must now be moved to a warmer position, but not to excite growth, having a drier atmosphere, and withholding water yet not so as to cause the premature falling of the foliage, but to gradually harden the growth. Ixoras that have been used for conservatory decoration must be returned to the stove now, placing them in the warmest part. If infested with mealy bug or scale thoroughly cleanse the plants by dipping or syringing with an insecticide, removing all their old flowers.

Clerodendron fallax is never so satisfactory as when raised from seed. The seed should be sown now or as soon as ripe, sowing it in small pots and shading. When the seeds have germinated the pots should be placed on shelves near the glass, afterwards shifting the plants into 6-inch pots, employing good fibrous loam, with a fourth of leaf soil and a little sand. Old plants that have flowered should be cut back, keeping them in a warm place and damping every afternoon until growth has commenced, then remove some of the roots and place in smaller pots for the winter.

Amaryllises are fast completing their growth, and they can be kept much cooler when at rest. They should have a cool stove or an intermediate temperature, with plenty of air and light to secure the solidification of the growth. Although a lessened supply of water will, consequent on the time of year and cessation of growth, be necessary, extreme dryness must be avoided, it being important that the soil be kept moist so as to prevent the loss of the roots. Pancratiums making growth after flowering should be encouraged with plenty of moisture, and increased root space if needed, supplying them with liquid manure, and growing them in a light position.

Euphorbia jacquiniæflora removed to cooler quarters some time ago must not remain too long, or they will, especially if kept too moist, lose their roots and do little good afterwards. They should now have a house or pit kept at a minimum temperature of 55° with plenty of air and light. Poinsettias should also have position near the glass in a similar temperature. Any that have been planted out must be lifted carefully, potted in fibrous loam, and kept rather close until they begin to root, when they must have more air. Other winter-flowering plants must be in plenty of light, so as to insure a stout solidified growth. Achimenes that have nearly done flowering should be continued in a temperature similar to that required to grow them in, giving water as required until the tops die, as they should gradually. Gloxinias require similar treatment, the soil being kept a little moist until the tops have died down. Gesneras are brilliant winter-flowering plants, and they must be kept in an active state of growth by repotting those that need it, and top-dressing others that are in the pots in which they are required to flower. They enjoy a light position and a moist atmosphere, but hot sun and water from the syringe are injurious to the foliage.

THE BEE-KEEPER.

SUGARS IN RELATION TO THE COMPOSITION OF HONEY—BEE FOOD.

SOME time since I remarked in the columns of the Journal that "sugar (especially grape sugar) is a true food." This sentence has suggested to one of our well-known correspondents a series of questions, which cover ground of such general interest to the educated bee-keeper that I have determined to treat the subject at somewhat greater length than the correspondence columns would allow.

It is no doubt the common idea that sweetness in all dietary articles is due to the presence of a substance which is identically the same, whether revealing itself to the taste in the grape, in milk, in honey, or in the sweetmeats of the confectioner; but chemistry teaches us that this error is a grave one, for the word "sugar" is applied to a class of bodies present having a common likeness with very marked differences, and that in the examples cited the sugar of each differs widely from the sugars of all the rest. This question has much to do with honey and bee-feeding, as we shall presently see. The sugar of our tea table is named by the chemist sucrose, and is derived usually from the sugar cane, although its source may be the beet or maple, while it is also found mixed with other descriptions of sugar in many fruits. The characteristic with which we have here most to do is the facility with which it crystallises into oblique six-sided prisms. It is on this account sometimes distinguished as crystallisable sugar.

The nectar produced by different plants varies not only in flavour but in the kinds and proportions of the kinds of sugar it contains, and in consequence honey similarly varies. Where much sucrose is present the honey shows a strong tendency to candy, while the artificial addition of uncrystallisable sugar will permit it to retain its clearness almost indefinitely. This artificial addition is most undoubtedly to all intents an adulteration, and I should not have referred to it had it not been argued by some American honey dealers that here "the end justified the means." But this knowledge may have a most practical application. I remember—but I must not be too circumstantial—at a competition of supers the judges disqualifying a very fine specimen because part of the super was candied and part not. They declared that this was distinct evidence that the super was the work of two years instead of one, or that part was honey and part syrup; but the knowledge that supers often are marbled, so to speak, with honey of different tints because gathered from different sources, and that with the source may vary the disposition to candy, should have shown the judges (?) that they were not giving "righteous judgment." But to proceed. By far the greater portion of the solid constituents of honey consists of that kind of sugar which is found in quantity in the grape, and has received the commercial name of grape sugar, although the vine is almost always innocent of its production. The chemical and more accurate name glucose has now passed into commercial use, and indicates a kind of sugar which is usually manufactured from starch—commonly maize starch—by boiling with sulphuric acid. The transforming hand of the chemist can, however, prepare it from any form of cellulose, so that woody fibre, nut shells, calico, paper, pawn tickets, &c., can all be changed into "grape" sugar. And if the process be properly performed and the conversion complete there is no reason why this "grape sugar" should not be a perfectly good article for bee food, the strong statements made in some quarters to the contrary notwithstanding. Unfortunately, however, the conversion is often incomplete, and a not inconsiderable amount of dextrin, or half-converted starch, remains. The white solid known as "brewers' " glucose is quite unfit for feeding bees, as the chalk which is used for taking up the sulphuric acid has not been separated from it, as its presence in its new form of sulphate of lime is beneficial in brewing.

Glucose again is separable into at least two distinct kinds of sugar, known as dextro and levo-glucose. The former is mainly found in sweet, and the latter in acid fruits—Oranges and Lemons by example; and here again honey may exhibit marked differences, according to the flowers which have supplied it.

The relations subsisting between sucrose and glucose are very important to the advanced bee-keeper, and will repay careful attention. Sucrose passes very readily into glucose. When cane sugar is taken into the mouth the saliva immediately sets up this transformation. Boiling does the same. The sugar refiner would have to boil his syrup at 230° Fahr. did he not carry on the process in what is called a vacuum pan, by which 150° evaporates his syrup readily. He thus saves the loss to which he would otherwise be exposed by the change of his crystallisable into uncrystallisable sugar.

He does not perfectly escape, for treacle, one of his waste products, contains scarcely a trace of cane sugar; it has almost wholly been converted into glucose by the necessary heat employed. What will those say to this who tell us that no boiling of cane sugar for bee food is needful? It is needful; it converts the cane sugar, in part at least, into honey or grape sugar, and prevents its crystallising, and so saves much trouble, and may save much mischief. The addition of a little acid aids in the process, hence the recommended vinegar; but the work would be done more perfectly by sulphuric acid afterwards neutralised with chalk, but for this method some technical knowledge is desirable. We see this very matter in the ease of a fruit tart; if sugar be added by the cook before baking the heat and the acid of the fruit transform sucrose into glucose. The flavour is more agreeable and natural; but more sugar will be required, since two measures of sucrose have as much effect on the palate as five of glucose. The reason of my statement that sugar, especially glucose, is a true food is now apparent. Cane sugar is changed into the latter in our case as the first step towards assimilation, and it probably would be so changed in the bee's body at its passage into the true stomach. The alteration is brought about by the absorption of a portion of water, so that, strange as it may appear, 342 lbs. of sucrose become 360 lbs. of glucose. The sugar cane is largely eaten at harvest time by the blacks, and they thrive upon it wonderfully. In addition to its sugar there is in it a little nitrogenous matter. This is also true of honey, which, apart from all aroma and delicacy of flavour, contains the essentials of one part at least of a scientific diet table.—FRANK R. CHESHIRE, *Avenue House, Acton, W.*

TRADE CATALOGUES RECEIVED.

Charles Turner, Slough.—*Catalogue of Carnations, Picotees, and Bulbs.*

Hooper & Co., Covent Garden, London.—*Catalogue of Bulbs (Illustrated).*

George Bunyard & Co., Maidstone, Kent.—*Catalogues of Fruit Trees and Roses.*

James Dickson & Sons, 108, Eastgate Street, Chester.—*Catalogue of Bulbs.*

E. S. Dodwell, 11, Chatham Terrace, Larkhall Rise, Clapham.—*Select List of Seedling Carnations and Picotees.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Coke v. Coal as Fuel (Kittie).—You cannot do better than refer to page 150 of the issue of the Journal of February 27th, 1879, where you will find a record of some experiments made by Mr. Luckhurst on the relative value of anthracite coal, coke, and a mixture of the two for heating a plant structure, the fuel being consumed in a saddle boiler. If you do not possess the number referred to it can be had in return for 3d. in postage stamps, sent to the publisher with a request that he send you No. 935.

Spent Tan (Ramatho).—Such old "rotten" tan as you describe has very little manurial value. If the tan is in a friable state it may be applied beneficially to very heavy land, such as clay or strong loam, but no benefit will result if it is mixed with ordinary light garden soil. Some pastures we have known to have been benefited by a heavy dressing of old tan, and this is possibly the most likely way in which your heap may be utilised—that is, if you have no heavy garden ground that requires to be made more friable.

Shifting Young Pelargoniums (Inquirer).—If they are Zonals they should, when the small pots are filled with roots, be transferred to 6-inch pots, potting firmly, placing them in a light position, and with a little heat the plants will flower in winter. If, however, they are of the Show, Spotted, or Fancy section, they may also now be repotted and have the shoots stopped so as to induce a branched habit, keeping them near the glass and the house freely ventilated.

Carnations with Flowering Shoots (Idem).—It is hardly likely that plants with no "grass" now will form any this season sufficiently strong to flower another season, but the roots will possibly survive the winter and make plenty of growth next season, and flower well the following year. The cuttings should not be torn off the stem, but cut so as to have one joint clear of the

crown leaves, and being cut transversely below the lowest joint they should have the leaves from it removed. Insert the cuttings in sandy soil under a handlight, and keep them shaded until rooted. For answers to other queries see the following reply.

Placing Roses in Pots Out of Doors (R. T. L.).—It is not necessary at this season to place Roses outdoors that have been grown in an airy greenhouse for the ripening of the wood, as that will, if the plants have had plenty of light, be thoroughly perfected, and the only good that exposure would effect would be in inducing rest, assigning them a sunny position, and housing before the weather becomes severe, the pots being plunged in ashes to the rims. The Cactuses should between now and the end of the present month be placed indoors, or before the soil becomes sodden with wet or the plants injured by frost.

Grapes at Manchester (G. C. Ramsden).—Our report of the heaviest bunch classes is, we believe, correct, and it agrees with that of the *Gardeners' Chronicle*. According to those reports Mr. Roberts placed his heaviest bunches in competition. In another paper we observe a mistake, and if this is the paper to which you refer you had better write to the Editor. We could have replied more satisfactorily if you had quoted the papers in which you allege there is such discrepancy. Have you not made a mistake? You quote words and weights which you say appear in "other papers," that are in none of the gardening papers now before us.

Dahlias with Open Centres (Amateur Florist).—This is very common this season, and is probably a result of the prolonged dry weather in the early part of summer, the plants being weakened by over-propagation, so as not to make a strong early growth. Want of proper supplies of water and liquid manure is also a frequent cause of the flowers having few petals. Nothing tends so much to encourage fullness in flowers as high culture, and it is to absence of this that we should attribute the sparseness of the petals.

Removing Plum Tree (A. Byle).—You cannot adopt a better plan than the one you propose. In all probability the trees will have some roots approaching more or less a vertical position, and they must be severed, half of them this year and the other half the next. If you can place a quantity of light gritty vegetable soil in the trench, packing it very firmly round the roots, it will be of great value in promoting the emission of a number of short fibrous roots that are so desirable for the quick re-establishment of the tree. It will be an advantage rather than otherwise to prune the tree by shortening the luxuriant branches.

Gooseberries Unhealthy (A. J. S.).—We think there must be some other reason for the branches dying. The galvanised netting we presume does not touch the bushes but is elevated above them; and further, if this netting was the cause of the injury we should scarcely expect the Currants to remain healthy in the same quarter. We know of Gooseberry bushes that have been covered with galvanised wire netting for a number of years and not the slightest injury has resulted, the netting being fixed 6 feet from the ground. The soil is perhaps too hot and dry for Gooseberries, and we should mulch it in summer to retain the moisture.

Sphagnum for Orchids (A Constant Reader).—The moss should be used in a living state, as when dead it causes an unsuitable stagnation about the roots that is very unfavourable to the plants. The most suitable work for you will be the "Orchid Growers' Manual," published by Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, London, from whom it can be obtained post free for 6s. 6d.

Grass Seeds for Renovating Permanent Pasture (Robsten Walther).—The most likely Grasses to succeed where there is great drought in summer and heavy rains in winter are *Festuca duriuscula*, *F. ovina*, *F. rubra*, *Cynosurus cristatus*, *Dactylis glomerata*, *Lolium perenne*, *Poa pratensis*, *Phleum pratense*, *Holcus lanatus*, and *H. mollis*, with the leguminous plants *Medicago lupulina*, *Trifolium filiforme*, and *T. repens*. Of Clovers the last-named is most likely to succeed, and of it we should employ 4 lbs. of seed, and the others in proportion as follows:—*Medicago lupulina*, 4 lbs.; *Festuca rubra*, 2 lbs.; *Cynosurus cristatus*, 2 lbs.; *Dactylis glomerata*, *Holcus lanatus*, *H. mollis*, *Phleum pratense*, and *Poa pratensis* each 1 lb., *Lolium perenne* being employed alone with those named at the rate of 4 lbs. per acre, or 21 lbs. altogether if the pasture be very bare. If the situation be high add 2 lbs. of *Festuca duriuscula*, and 1 lb. of *Festuca ovina*.

Planting out Stephanotis (Subscriber).—The plant will succeed in the position you name, the growths being trained in a light position near the roof, and the temperature of the house and general management being suitable. So far as we can understand your case, which you have not made by any means clear, we should grow the plant to a larger size before planting it out; on this point, however, you must judge for yourself. A suitable compost will be about two-thirds or nearly so of rather light turfy loam and one-third of turfy peat, the whole to be broken by the hand and used in a somewhat lumpy state, pressing it down firmly; to the soil add broken charcoal liberally, with sand or gritty matter to render the soil porous. Planting should be done in the spring. In regard to the other question, if you have quoted the conditions correctly, the question answers itself, and all you have to do is to stage the "largest and heaviest" fruit you have.

Various (F. C.).—There was no Peach leaf enclosed in your letter. We scarcely understand the condition of your Grapes, as you do not say whether the warts are on the leaves or berries; please send us a small sample of the foliage and fruit to which you refer, and we will endeavour to aid you. If the Vines are free from insects we should not syringe daily, but should sprinkle the walls and paths on bright days for obtaining atmospheric moisture. Cherry stocks are usually raised from seed. Quince and Paradise stocks from cuttings inserted in October, or by layers pegged down at the present time. You cannot have a more easy method of raising Plum stocks than the one you describe. The Black Damask or Morocco Plum is a good and very old variety, and ripens in August; fruit medium-sized, roundish, very dark purple, and with a sweet brisk flavour. The budded stocks should not be headed back until growth has commenced in the spring. When Rose huds are inserted the shorter the shield is below the bud the better is the union, and only sufficient need be left for tying the bud down to the stock. When the shield below the bud is lengthy there is an unsightly space between the stock and the bud, and the latter is more liable to be blown out than when it unites to the principal stock of a standard Briar. If the hud is inserted as low on the stem as possible, as it should be, the transverse cut must be above it, and in no case would it be better below.

Mealy Bug on Vines (A Disappointed Grape-Grower).—Your Vines have not had the attention they needed or they would not been in their present state. You cannot destroy the insects until the crop is cut. We advise you to remove the fruit as soon as possible, and then violently syringe the Vines daily for a week. This must be no ordinary sprinkling, but a thorough and

forcible washing. If you can wash off the protective mealy covering from the pests they will be at your mercy. So long as this remains on nothing will destroy them. These heavy syringings will at least check the increase of the insects, and if the work is thorough will reduce their numbers considerably. As soon as the leaves turn yellow remove them from the Vines with the hand and burn them, you will then destroy thousands of the enemy: shortly afterwards prune your Vines and burn the laterals, then must follow a cleansing process. "Ordinary" measures, as you describe them, are of no use; the cleansing of the Vines and house must be of an extraordinary kind. The Vine rods must be washed with an insecticide. It is not of such great importance what this is as the manner in which it is applied. Gishurst compound, fir-tree oil, nicotine soap, or softsoap and tobacco water may be used, and any or all of them will be of service if rightly used. The solution, of the strength recommended by the vendors, must be brushed into every crevice with a spoke brush until you are certain that not one insect is left. Go over the Vines twice, and spare neither the solution nor the brisk action of the elbows. Wash also every portion of the woodwork of the house wherever this may be, and let paraffin penetrate every chink wherever it is situated. Cleanse the walls similarly and limewash them. Remove all the soil from the border in the house (if any), and add fresh, and in fact adopt every possible means of exterminating the enemy. After all you can do some insects will probably appear in the spring, and must be searched for daily and promptly destroyed. Mealy bug in viueries is one of the worst foes that the gardener has to deal with, yet it is conquerable, but only when the battle is fierce and persistent, and you can only succeed in your object by adopting some such measures as we have suggested.

Names of Fruits (*R. D., Lancashire*).—We are unable to identify your Apple from the specimen sent. In all probability it is a local variety. (*Flora*).—The Apple appears to be the Red Astrachan. We are unable to inform you of the origin of the local name which is applied to the fruit in your district. (*G. B. C. W.*).—We have little if any doubt that your Plum is the Victoria. We have seen thousands of fruit of that variety of the form of those before us, and it is not improbable that another year you will have longer fruit. We have frequently gathered long and almost pointed fruits, and others like those you have sent, from the same tree.

Names of Plants (*G. O. S.*).—*Polygonum cuspidatum*. (*G. L.*).—The fungus you send appears to be a small and immature specimen of the Giant Puff-Ball, *Lycoperdon giganteum*. (*Miss Riddell*).—It is not a *Spiraea*, but one of the Bugworts, *Cimicifuga spicata*. (*C. M. Major*).—*Zea Mays*.

COVENT GARDEN MARKET.—SEPTEMBER 7.

THERE are still large quantities of Grapes arriving from the Channel Isles, causing home-grown fruit to realise low prices. Very little demand for best grown fruits.

FRUIT.							
	s. d.	s. d.		s. d.	s. d.		s. d.
Apples.....	1 0 to 3 0		Lemons.....	each 18 0 to 25 0			
Apricots.....	doz. 1 0 1 6		Melons.....	each 1 6 3 6			
Cherries.....	lb. 0 0 0 0		Neectarines.....	dozen 3 0 6 0			
Chestnuts.....	bushel 0 0 0 0		Oranges.....	100 4 0 8 0			
Currants, Black.....	1/2 sieve 6 0 0 0		Peaches.....	dozen 4 0 9 9			
" Red.....	1/2 sieve 0 0 0 0		Pears, kitchen.....	dozen 0 0 0 0			
Figs.....	dozen 1 0 2 6		dessert.....	dozen 1 0 2 0			
Filberts.....	lb. 0 0 0 6		Pine Apples.....	lb. 2 0 3 0			
Cobs.....	lb. 0 0 0 0		Strawberries.....	per lb. 0 0 0 0			
Gooseberries.....	1/2 sieve 0 0 0 0		Walnuts.....	bushel 0 0 0 0			
Grapes.....	lb. 0 9 4 0		ditto.....	100 0 0 0 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen 2 0 to 4 0		Mushrooms.....	punnet 1 0 to 1 6	
Asparagus.....	bundle 0 0 0 0		Mustard & Cress.....	punnet 0 2 0 3	
Beans, Kidney.....	lb. 0 3 0 6		Onions.....	bushel 3 6 5 0	
Beet, Red.....	dozen 1 0 2 0		pickling.....	quart 0 0 0 5	
Broccoli.....	bundle 0 9 1 6		Parsley.....	doz. bunches 3 0 4 0	
Brussels Sprouts.....	1/2 sieve 0 0 0 0		Parsnips.....	dozen 1 0 2 0	
Cabbage.....	dozen 0 6 1 0		Peas.....	quart 0 9 1 3	
Carrots.....	bunch 0 4 0 6		Potatoes.....	bushel 3 9 4 0	
Capsicums.....	100 1 6 2 0		Kidney.....	bushel 4 0 4 6	
Cauliflowers.....	dozen 0 0 3 6		Radishes.....	doz. bunches 1 6 2 0	
Celery.....	bundle 1 6 2 0		Rhubarb.....	bundle 0 4 0 6	
Coleworts.....	doz. bunches 2 0 4 0		Salsafy.....	bundle 1 0 0 0	
Cucumbers.....	each 0 4 0 6		Scorzoneria.....	bundle 1 6 0 0	
Endive.....	dozen 1 0 2 0		Seakale.....	basket 0 0 0 0	
Fennel.....	bunch 0 3 0 0		Shallots.....	lb. 0 3 0 0	
Garlic.....	lb. 0 6 0 0		Spinach.....	bushel 3 0 0 0	
Herbs.....	bunch 0 2 0 6		Turnips.....	bunch 0 4 0 0	
Leeks.....	bunch 0 3 0 4		Vegetable Marrows.....	each 0 0 0 2	



POULTRY AND PIGEON CHRONICLE.

A WET HAYTIME AND HARVEST.

THE lessons taught by a wet haytime and harvest are many and sometimes very serious as regards the conducting of a home farm; still, when we look back and review our own experience in the hay and harvest field for a period of many years we may probably be able to bring to the notice of the young men and beginners not only some of the most exceptional seasons, but also how they were encountered, as well as the advantages to be obtained by the use of means which are of comparatively recent

introduction. By so doing we may be enabled to understand the benefits to be derived from a departure from the harvest customs which formerly prevailed.

We have been induced to some extent to take up this subject now in consequence of the serious aspect of the weather. It must always be difficult, however, to characterise and calculate upon the weather occurring during haying or harvest, because there is quite a difference of a month or six weeks in certain parts of the kingdom. The haying season in the early districts lasts from the first week in June until the middle of July; in the latest climates, however, such as the north-western and northern districts, it extends from the first week in July until the middle of August. In like manner the harvest period for corn in the early southern or eastern districts generally commences the first week in August and continues until the middle of the month of September; whereas in the northern and north-midland counties and Scotland the harvest period extends from the 1st of September until the middle of October. Such, however, is the variation of climate and seasons that we have occasionally to record exceptions to any general period of time for either haying or harvest, and notably we may mention 1853, 1860, and 1879, without going back to the years 1829 and 1830. In these exceptional seasons in various parts of the kingdom there was absolutely no time when the produce, either hay or corn, could be harvested in fair saleable condition by the old-fashioned mode of drying and storing in sunny and dry weather. The new implements—such as the mowing machine, the tedding machine, the horse rake, &c.—enable an amount of work to be done in the shortest period, and thus reducing the risks in ordinary management which formerly attended the saving both of hay and corn crops. In respect of the saving of field hay, and also of meadow or pasture hay, we could extend our observations and remarks to great length; as this is not our intention we must refer our readers to the subject as treated in this Journal on the 20th and 27th of June and 4th of July, 1878.

We must not omit the notice of certain modes of preserving and securing both hay and corn by two separate devices. The first to be noticed is the machinery invented by Mr. Gihhs, which for a time attracted but little attention on account of the cost being a very serious item. The late untoward seasons, however, as well as the present one, will cause more inquiry into this mode of saving hay and corn, for it must be remembered that certain circumstances will favour the use of the machine, which are of great importance. The first is, that in seasons when but little hay can be saved by the ordinary means the value of that portion got up in condition reaches a higher value, and the same observation applies also to the saving of corn, especially in those districts where the rainfall is nearly always heavy. Again, in preventing waste of the leaf of Clovers and Saintfoin, and in saving corn without sprouting or shedding, especially upon large occupations, or in climates usually adverse to haying and harvest operations, the purchase of one of these drying machines may be really judicious and economical.

We must now refer to the latest proposal for the practical saving of hay under certain conditions. It is called the self-harvesting of hay and corn, of which the following report was given in the *Times* of August 11th. The originator is Mr. R. Neilson of Halewood, near Liverpool, who farms 300 acres on the estate of the Earl of Derby. This system has also been taken up by an enterprising gentleman, Mr. R. M. Knowles, J.P., of Colston Bassett Hall:—"Mr. Knowles, we are informed, has several farms in his own hands, but upon his home farm has put up permanent hay sheds made of corrugated iron roofing upon iron pillars, the breadth 20 feet, and the length forming a series of square bays. Along the middle of each shed is laid in the ground an air-tight drain of sanitary pipes, having an aperture in the centre of each

bay, these being opened or closed by slides, so that any one can be worked without using the others. In stacking the hay a vertical air shaft or chimney is formed over each aperture by the common method of drawing up a sack of straw or a round chaff basket as the building of the rick proceeds, but these ventilating flues are carried up to only half the height of the stack. The new plan of making the hay consists in tedding the grass as fast as it is cut and exposing it to the withering action of the air, whether there be sunshine or occasional showers. In about two days without any further labour upon the crop, and whether it be wet or not (a dry day, of course, being preferred for the operation), the green hay, in a condition of not more than half made, is collected into rows by the horse rake, carted, and stacked. The rick at once begins to ferment and heat, and this heat naturally generated is made use of to change the moist grass into properly dried hay; in fact, the hay makes itself by its own heat, without the cost of field manipulations, and without the risk inseparable from employing the sun's heat for the same purpose; the business being a certainty in any weather whatever, and the quality of the product cannot be beaten, as witness the cut stack now remaining in the rick-yard at Colston Bassett, from the hay made by the process in the wet of last year.

"Everyone knows that half-made hay put together in mass quickly heats to a point at which if left to itself it will completely spoil, and probably fire. This is, however, prevented by the use of an exhaust fan set in motion, and drawing the heated air from the pipe at the base of the rick, which is connected with the chimney in the centre of the stack, and by that means rarefying the air in the chimney; the replacement of that air, however, can come only by currents penetrating the rick from the outside walls and roof, and gradually converging into the chimney in the centre. By this suction of hot air and moisture out of the mass cold air is induced to enter the stack at all points, and to seek the central flue, bearing with it the excess of heat and the moisture, and cooling the whole substance of the rick. Mr. Knowles' five-horse-power steam engine drives the fan with sufficient force when giving out a mere fractional part of its power. One horse, however, working a fan by means of an ordinary chaff-cutter, horse gear, and intermediate speed gear, will do well; or two men turning a corn-dressing machine fan arranged in connection with the air tube have been able to accomplish all that was wanted for cooling a stack. With a gentle exhaust the atmospheric air is caused to permeate every part of the rick in ample quantity for keeping down the temperature of the fermenting grass. Mr. Knowles has brought the internal temperature of a large rick for 130° down to 90° in the short space of forty minutes. In the rick while building he lays at various heights wooden tubes of bore large enough to admit a thermometer to be introduced by a lath, these tubes reaching horizontally from the outside to the centre, and thus the heat of all portions of the stack can be examined. A temperature of 100° is considered the maximum at which it is advisable to let the fermentation work, the fan being set in operation at any heat approaching this. The same provision of air ducts, and a manually operated exhaust fan, have been employed with advantage in keeping barley and other corn stacks from heating." In concluding our extracts and quotations from this interesting and valuable report we beg to state that on a future occasion we intend to give our opinions upon this matter in comparison with that of others, and our mode of proceeding at former periods, &c.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This will now, when not employed in connection with harvest, be engaged, together with any oxen which may be kept for farm work, upon land intended for Wheat, such as laying out the dung upon the Clover leas. This may be spread immediately with the view of being ploughed in, for it is quite the exception where land at this period is too wet for ploughing out of lea. On the contrary, it will be all the better for being rather close when ploughed. The autumn fallowing, which after the seeding of Trifolium, Rye, winter Tares, and winter Beans, must have immediate attention whenever the ground is dry enough for cultivating either by the steam tackle, horse, or ox labour, and proceed with the farm work at any period previous to the cultivation for Wheat, except upon strong cold fallow land. In that case the sooner the dung is laid out the better; but what is more beneficial is that dung should not be used on fallow-d, strong, flat-lying land and on fields distant from the homestead, for we prefer to use guano in the autumn and nitrate of soda in the spring. In this way we dress the land without fear of the manure producing weeds, as much of the farmyard dung does. Even where all the stock on the farm have earth under their beds for absorption of liquid manures, yet when dried peat is used we have an earth adapted for absorption; yet it never produces weeds, being composed of decayed vegetation. The autumn period for cultivation is the foundation of all good farming, for whether the land comes in

for Barley after Wheat, or Mangold, Carrots, Cabbage, or other early roots, it should be cultivated as soon as the crop is cleared. We never hesitate about delaying the season for Wheat a little if the land is found in a state fit for cultivation, because as soon as the autumn rains commence, which they usually do about the middle of October, no more cultivation can be carried out. After the Wheat is all sown the land previously cleaned on the surface may with advantage be deeply ploughed before the winter frosts commence. The lifting of the Potato crop must soon be done, and will go on easily if a strong horse is used to one of the Potato-lifting frames attached to the frame of the double mould plough followed by an active party of women and lads, for this is strictly women's field work, as some of them will do more at it than men.

Hand Labour.—Men will now be required in trimming fences, such as the Whitethorn or quickset hedges, especially where they were not trimmed once in the summer, for this wood hardens very quickly and thus becomes almost like wire, in which case it is not easy to keep a handsome and good fence when not trimmed both in July and September. Filling dung into the carts, laying out and spreading, will be continued, also hoeing and finishing the late Turnips, which, owing to the heavy rains lately, have not made such good progress as usual upon the mixed soils. Young Turnips cannot receive so much rain as older crops without injury. The labour in wood-cutting may commence on the home farm about the 20th of the month, for it has been a practice on various estates as long ago as we can recollect that underwood sold may be considered ripe for cutting on the 13th of this month; and many buyers prefer to begin early, because the wood cuts softer and makes up into hoops with less labour than wood hardened by winter weather. When the cutting of underwood commences it ought to be thought of whether trees for timber are to be reserved, and if so should be marked with red or white paint previous to the woodmen beginning their work. The home farmer, too, must remember, if it falls to his lot to mark the trees for timber, not to reserve any stems or those which have been previously cut off as underwood, but reserve those Oak plants only which have grown direct from the acorn and the Ash from the seed.

Live Stock.—When horses are reared on the home farm with the view of future employment in the tillage, &c., the foals will now be weaned, or very soon according to age, and at such a time we advise that they should be as a rule kept in sheds and littered yards, and fed carefully with good hay and Oats, or Maize. At such times they do best kept in pairs, for they enjoy companionship, and do not so much miss their dams, and when they have always access to water and rocksalt they are sure to do well. Cattle which have been grazing for the butcher on the pastures will soon be ready for sale, at least the forwardest in condition. The past summer has, however, been so dry and the grass in some cases very deficient, that the bullocks are not so early in condition as usual, still they will pay for receiving supplementary food, such as cotton cake and Bean or Barley meal; for in consequence of the late abundant rains the grass has sprung up so suddenly, and it is not so nutritious as grass of slower growth, hence the animals require other food to maintain them in advancing condition. The dairy cows on the contrary are doing very well on the short young grass, and are yielding a satisfactory quantity of milk. These animals, however, would be benefited by an allowance of bran and Maize at milking time night and morning, especially the cows kept for making butter, otherwise for yielding milk for sale cotton cake answers a good purpose, except where animals are kept stalled and a supply of grains can be obtained from the brewery or distillery. The sheep on the home farm are not likely during the coming autumn to be in want of grass either in the meadows or parklands. The grass in the water meadows should be fed by dairy cows, as it is never safe for sheep after a succession of wet weather. The young cattle, both calves, yearlings, and heifers, will now find abundance of grass under a well-regulated system of stocking; but as the nights are getting longer and colder great care should be taken for them to lie high and dry at night if possible, this being the time of year when young animals full of condition are very liable to quarter-ill and splenic diseases. The breeding ewes should now have the rams with them, as in the midland districts the plan is to have the lambs to fall earlier if possible than formerly, because it is on very few farms where they depend upon pasture only, and it is now thought best to have a rather larger portion of arable land under culture, at any rate where a considerable stock of breeding ewes are maintained.

DAIRY AND POULTRY FARMING.

ALTHOUGH dairy farming has been less injured during the period of agricultural depression than arable land farming, still there are various points requiring attention, in order that dairy products may be turned out of the best quality, whether of cheese, butter, or sale of milk, for this is almost the only way that foreign importations can be competed with successfully. We do not consider at present any particular districts have the monopoly of supplying the large towns as formerly with dairy products, because managers of out-lying farms away from the railway stations or towns can turn their attention to the rearing of calves for veal; in fact, it is well known that various dairymen have given up butter and cheese-making and

taken to the rearing of calves, and when properly attended to veal meets with but little foreign competition, for the quality of veal made from shorthorned cows by suckling calves of the Devon and Hereford breeds is unrivalled by any portion of the foreign supplies. The feeding of cattle for beef will probably pay as well in the future as in the past, notwithstanding the large importations of foreign meat; but we advise the home farmer to calculate which will pay best at the commencement of winter—whether to put up so many steers for fattening, or take so many Shorthorn dairy cows which have recently calved and keep them at the same cost as the steers in fattening, and sell the milk or suckle calves for veal. We think the cows would pay better than the steers, for if well bred they would be making beef during the whole milking period. It will be advisable in the future in most cases for the home farmer to breed his own live stock, whether of cattle, sheep, swine, or horses. We recommend the large Yorkshire pigs to be crossed with the Berkshire; this cross will give large farrows, which will quickly become of early maturity, and furnish the best of meat at any age.

Poultry and eggs next demand the home farmer's attention, as the importations are immense. For eggs alone we pay the foreigner two and a half millions of money annually. Why not breed more poultry, and produce eggs enough for the requirements of the people? Surely we can do it as cheaply as any other country if we give it thought and attention, and utilise our own farm produce. The economy of the homestead will require more attention in the future than is often bestowed upon it. For instance, all the cart horse stables, cattle and pig pens, and covered yards may be floored with earth instead of bricks and stones. We hope to see in the future farm produce of every kind sold at farmers' or co-operative stores in all towns, where also the home farmer may be able to purchase all he requires for use, including manures.

VARIETIES.

THE MANCHESTER BEE SHOW.—“A LANCASHIRE BEE-KEEPER” writes to us in somewhat disparaging terms relative to the above Show, and in rather strong language denounces what he terms the “plucking off” the wings from bees and marking the queen with a string round her waist. These practices our correspondent describes as “cruelty to animals,” and consequently in direct opposition to the teachings of those who have written on the “humane treatment of bees.”

— THE HARVEST.—Come what may in the shape of sunshine, the harvest of 1881 will have to be ranked with its four immediate predecessors, as not alone below an average so far as yield is concerned, but also as regards quality. In Ireland the actual situation is not quite so disastrous, for in many districts a spell of fine weather might yet remedy the mischief that has been done; but from Cork and Tipperary we hear that great quantities of Wheat and Oats fit for reaping are shedding, whilst corn in stock is rotting and Potatoes are blackening. At home the outlook is still more generally disheartening. In Durham the rivers have risen and flooded the surrounding country. In Hampshire the sheaves in many fields are becoming green, and it is estimated that produce is already damaged to the extent of from 6s. to 8s. per quarter. Lancashire has been one of the heaviest sufferers from the deluge—hundreds of acres have been flooded in the fertile districts in and around Furness and the Fylde. A good harvest this year was the last chance of many a farmer who has been struggling manfully for years past against the weather and the American. If we could only get a few weeks of sunshine the crops might be still saved in some parts in tolerably fair condition, and some corn was housed before the rains came, but at best the outlook is a gloomy one.

— A FAMOUS BUTTER COW.—Notice has already been taken of the run on Jerseys, and the high prices obtained for some sold at public auction this year. One of the best of the herd died recently, Jersey Belle of Seituat—pronounced minus the “c”—owned by Mr. Charles O. Ellms, of Seituat, Mass. The cause of death was milk fever. At the time of her death she was just ten years and one day old. In her seven-year-old season she was tested for a year with a result of 705 lbs. of butter in the 365 days. A year ago last month she was tried on extra feed, and in one week the return was 25 lbs. 3 ozs. of butter. One peculiarity of her cream and butter was its rich colour, never varying summer nor winter. Her first calf, dropped in 1874, went to the butcher. It was then seen what a

milker she was, and better care taken of the remainder, of which Mr. Ellms has three heifers, and Col. H. S. Russell of Milton, Mass., one.—(*Live Stock Journal*.)

— HARVEST PROSPECTS IN EUROPE.—An international grain fair has been opened at Vienna. The representatives from the various countries of Europe gave in official reports as to the harvests in their respective States, which the *Daily News* correspondent telegraphs as follows:—Wheat: Hungary—below average; Hanover—excellent; Rhine Provinces and Silesia—below; Saxony—doubtful; Bavaria—above; Italy—considerably below; Holland—average; France—below, importations expected to be necessary; North Russia—below; Central Russia—average. Barley: Bavaria and Prussia—above the average, and of fine quality; elsewhere—fair. Maize: Bessarabia—expected large; other Danubian Provinces—short and poor.

— FOOT-AND-MOUTH DISEASE IN WILTSHIRE.—Nearly eight hundred sheep, several head of cattle, and a few swine were reported last week to be suffering from foot-and-mouth disease in Wilts, but as the Executive Committee have decided that at present there is no necessity for imposing restrictions on fairs and markets, the Clerk of the Peace for the county has been instructed to apply to the Privy Council to release all areas in which affected places have been set free by the local authority. The Wiltshire cattle and sheep fairs and markets will consequently be held as announced.

— TOBACCO CULTIVATION IN IRELAND.—Among the Irish business to be brought before Parliament next session will be a Bill to repeal the Acts in force prohibiting the cultivation of Tobacco in Ireland. During the recess arrangements have been made for the collection of information and statistics on the adaptability of the Irish soil for the growth of the plant. It is not proposed, should the cultivation of Tobacco be resumed in Ireland, to exempt it from duty.

— THE HARVEST IN WALES.—The *South Wales Daily News* contains a report of harvest prospects in Wales and the west of England from upwards of one hundred of its correspondents in agricultural counties of its districts. The general result is surprisingly satisfactory. In only one district is the report altogether bad. From nearly all districts the reports show that the present fine weather has saved almost everything, and that harvest will be much above the average of the last three years.

— PROTECTING HORSES FROM FLIES.—Writing on this subject to the *Irish Farmers' Gazette*, Dr. J. J. Ridges says—“Before harnessing a mixture of one part of crude carbolic acid with six or more parts of olive oil should be rubbed lightly all over the animal with a rag, and applied more thickly to the interior of the ears and other parts most likely to be attacked. This application may need to be repeated in the course of the day, but while any odour of the acid remains the flies decline to settle, and the horse is completely free from all their annoyance. Whether the dreaded tsetse of Eastern Africa would also fight shy of similarly anointed animals I cannot say, but it deserves a trial, and if successful would be an incalculable boon. It might also prove obnoxious to mosquitoes.”

POULTRY AND PIGEONS

POULTRY NOTES.

AN American breed of poultry which has hardly of late years received as much attention as it would appear to merit is the Dominique. This breed, according to a writer in a contemporary on the other side of the Atlantic, is of considerable antiquity, having been imported into America about the year 1800 from the island of Hayti in the West Indies, and taking its name from the eastern part of that island which is called St. Domingo. The writer first heard of them when he was ten years old, and as he is now in his seventy-eighth year—that would be about the year 1813. He then saw a cock and ten or twelve hens, said to have been hatched from eggs purchased from the original importer of the breed. “These birds were about the size of the present Plymouth Rock, altogether larger than the common hen, with nicely barred plumage, yellow legs and beaks, and fine rose combs. The hens were great layers and good courageous mothers.” Some few

specimens of the breed have been imported into this country, and a good illustration of a pair of them appears in the *Illustrated Book of Poultry*, but they do not seem to have made much way here. This is a pity, as they are hardy, excellent layers, and good for table. The chickens are said to grow rapidly and mature early. The plumage is of the colour known amongst fanciers as "cuckoo"—that is to say, a ground colour of very light blue-grey pencilled or banded across each feather with darker blue-grey bars. The ground colour is sometimes pure white, in which case the bars are of comparatively light blue-grey. On the other hand the bars are sometimes almost black upon a rather dark blue-grey ground. The margins of the two colours which are on each feather are not clearly defined, but are shaded or run off into each other. The general shape and style are very much like that of the Dorking, although the hens are rather more down by the head and jaunty in carriage than the Dorking generally is. In America the breed has hardly had fair treatment of late years, and has been somewhat overshadowed by the newer Plymouth Rocks, but it is now being taken up again; and the writer from whom we have already quoted recommends that the standard of weight should be increased to that of the Plymouth Rocks—viz., from 9 to 10 lbs. for cocks, and from 7 to 8 lbs. for hens.

OUR American contemporary, the *Poultry Bulletin*, a short time since boasted of the superiority of the American poultry illustrations in general, and its own in particular, and even referred in terms of censure to some of the plates in the *Illustrated Book of Poultry*. It is not a little amusing after this that the illustration of Dominiques given last month should be a mere reproduction in black and white of the coloured plate in the English work to which we have already referred. It reminds one of Mr. Burnham's coolness in running down the English Brahma as being vulture-hocked, &c., and then reproducing the engraving of the Dark Brahma cockerel in Mr. L. Wright's work on the Brahma fowl, and describing it as a specimen of the Brahma as bred by Mr. G. P. Burnham. It is rather strange, if it be true that the old country is so much behindhand in the matter of poultry illustrations, that an American journal in illustrating an American breed should have recourse to an English work as a source from which to obtain an illustration of that breed.

PLYMOUTH ROCKS have during the last few seasons made great strides in popularity on this side of the Atlantic. They are of comparatively modern origin, and, except that they are somewhat larger in size and have single combs, they are almost identical in appearance with the Dominiques. They are said to have been originally produced by a cross between Dominiques and the black Java Fowl, which we recently described. The smaller size and Cochin character of the tail and the greater abundance of fluff are also points of distinction between the Plymouth Rock and the Dominique. These latter characteristics seem to indicate that a Cochin cross has been resorted to; and as the Plymouth Rock is more Asiatic in type than either the Dominique or the Java Fowl, it is probable that a cross of Cuckoo-Cochin blood has been employed to improve the original cross. It is perhaps as well to note, in order to avoid risk of confusion, that the name Plymouth Rock was some thirty years ago applied by Dr. Bennett to a mongrel fowl which he produced "by crossing a Cochin China cockerel with a hen that was herself a cross between the fawn-coloured Dorking, the Great Malay, and the Wild India." The modern Plymouth Rock has, however, no connection with Dr. Bennett's wonderful production, which has, we believe, long since disappeared.

THE modern Plymouth Rock is, as we have already stated, becoming firmly established here. A Club has been formed to support it, and it will this season have classes at Birmingham, the Palace, the Dairy Show, Oxford, and several other exhibitions. A standard of excellence has been issued by the Club. A leading fancier of the variety informed us some time since that he had orders for more than double the number of eggs for hatching which he could supply during the past season. It would thus seem that the Plymouth Rocks are having a fair trial, and we shall be glad to learn the results of their experience of the breed from any of our readers who may have kept them. It is a pity that our American friends should have such a fancy for yellow legs as to insist upon their presence in all their breeds. There is a prejudice against yellow legs in the English markets for table poultry, but if the birds be of sterling merit for table purposes that prejudice will doubtless ere long be overcome in their favour. That they are in the first rank as layers is generally accepted, and

the table of laying results which we extracted last week from an American contemporary fully bears out this view.

STILL another American variety seems to have recently received renewed attention. Jersey Blues were apparently "made" some years back, but after a while passed out of notice, and have only of late been again taken up by some leading fanciers. They betray an undoubted Andalusian origin in their colour and marking. The ground colour is a deep slate blue, and the pencillings are almost black, as also are the saddle, hackle, and tail feathers of the cock. The earlobes are red, the legs black. They are squarely made, full-breasted, thickset birds, and weigh from 8 to 10 lbs. in the case of the male bird and from 7 to 9 lbs. in the hen. Their tails and combs are of medium size; and as they are said to be excellent table fowls, and, indeed, "to have been frequently eaten as Turkeys, and pronounced good ones too," it is not unlikely that the Langshan may have something to do with their origin. A cross between good-sized Andalusians and Langshans as free of leg feather as possible would probably produce a fowl not unlike the modern Jersey Blue; and as the birds are reported to mature very early and to be exceptionally hardy, it may be worth while for some fancier or farmer to try the effect of such a cross.

OUR LETTER BOX.

Incubators (Mrs. M.).—We have had no personal experience of the incubators you name; they are, we believe, identical in principle with, and merely vary slightly in detail and perhaps in quality from, Christy's. We think the business of the firm you first refer to was taken over by the other maker you mention, so that there is really only one incubator in the market. We have amongst our readers several who have used Christy's machines with success, and should recommend you to obtain his pamphlet, also Brown's work on incubation, published by Messrs. Cassell, Petter, & Galpin.

Plymouth Rocks (L. S.).—You will find some notes in reference to this breed in another column. It is of American origin, and the birds are esteemed and found profitable by many poultry-keepers—at least, so we find by reports in the American papers.

Hens' Feet Swollen (L., Baltimore).—We have never before heard of the ailments which you describe affecting Hamburgs. If your roosts are very high lower them, and if there is any broken glass lying about remove it. If pus have formed in the swellings on the feet they must be lanced and the matter squeezed out, and the parts fomented with warm water. Some few days after the matter (if any) has been extracted, or at once if there be no matter to extract, apply lunar caustic daily to the swellings on the feet. Until a cure has been effected the birds must not be allowed to perch, but should sleep on straw. The scales on the legs may be removed by scrubbing well with a hard nail-brush and soap and water, and then applying an ointment made up of flowers of sulphur and lard. Repeat this process daily until a cure is effected.

Prickly Comfrey (Hans F. Hamilton).—In November the plants may be divided into as many pieces as there are crowns, reserving a portion of root to each division, planting in rows 30 to 36 inches asunder, and 24 to 30 inches apart, burying up to the crown in loose soil. The ground should have been deeply trenched, and the more manure is worked-in the better the plants will flourish. A good dressing of manure should be given about the crowns after planting, and this should be pointed-in early in spring. The deeper and richer the soil the more space should be given the plants. Comfrey does best in deep damp soil, but the moisture must not be stagnant. Propagation is also effected by cutting the roots into lengths of about a couple of inches, and dibbling them in at the above-named distance apart, November and February being suitable seasons. Guano, nitrate of soda, and salt are good surface dressings, applying in March.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881. August. September.	Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.				
		Dry.	Wet.			Max.	Min.	In sun.	On grass.			
Sun. 28	30.052	deg.	deg.	W.	deg.	deg.	deg.	deg.	deg.	In.		
Mon. 29	30.026	57.2	52.1	S.	58.0	67.1	42.3	120.2	37.8	0.070		
Tues. 30	29.807	58.2	57.3	W.	57.8	62.7	50.2	72.3	43.3	0.791		
Wed. 31	30.130	58.6	56.5	W.	57.7	69.3	54.7	120.7	53.3	0.214		
Thurs. 1	30.182	53.4	49.6	N.	57.9	59.4	43.6	103.7	46.3	0.010		
Friday 2	30.137	52.7	48.6	N.	56.7	57.4	48.7	104.2	46.4	—		
Satur. 3	30.039	54.3	51.6	N.	56.0	61.6	50.0	95.2	49.3	—		
Means.	30.052	55.3	52.6		57.2	63.1	49.5	102.8	46.4	1.085		

REMARKS.

28th.—Fine, dry, and cool.
29th.—Wet morning; latter part of day squally; heavy rain in evening.
30th.—Fair day, with a very heavy shower at 2 P.M. and a little rain in evening.
31st.—Fine, but with scarcely any sunshine.
1st.—A cloudy day, with occasional sunshine in morning.
2nd.—Fine pleasant day without much sunshine.
3rd.—Cloudy morning, fine bright afternoon and evening.
A dull cloudy week, with a good deal of rain in the first half. Temperature rather below the average.—G. J. SYMONS.



15th	TH	Brighton Horticultural Society's Show.
16th	F	Harborne Potato Show (two days).
17th	S	Paisley Florists' Society's Show.
18th	SUN	14TH SUNDAY AFTER TRINITY.
19th	M	Suffolk Bee-keepers' Association's Show at Ipswich (six days).
20th	TU	International Potato Exhibition, Crystal Palace (two days).
21st	W	

THE ARRANGEMENT OF CUT FLOWERS.

It is quite an exception to my ordinary experience to find a gardener able to arrange cut flowers really well," was the extraordinary expression that fell quite recently from the lips of a lady whose exquisite taste in the treatment of cut flowers is indisputable, who, moreover, is the owner of a large garden, and whose experience of the doings and capabilities of gardeners is sufficient to impart great weight to words not lightly spoken. A feeling of regret to which they gave rise prompts the inquiry, Is this so? and if it is, What can be done to effect a general improvement in a matter of such importance?

That the prizes given at flower shows for dinner-table decorations and for bouquets have done something in this direction is undoubtedly true, but ought we to rest content with this? The inspection of finished work is instructive by conveying a general idea of how it should look when done, but how to do it is the question to which the sight of it so frequently gives rise. "Can I ever attain to such excellence as this?" is the unspoken thought of many a puzzled but aspiring beholder. It would be misleading to assert that it is possible to render proficient all or even many of those who aspire to the mastery of an art for which, just as in landscape gardening, there must be a natural taste—an intuition that readily adapts itself to the refining influence of artistic training, and originates and brings to perfection conceptions of its own different from others, and yet devoid of all that offends the highest taste and culture.

Let not those be discouraged, however, who are sensible of the non-possession of such natural gifts, and who can never hope to achieve great things in this direction, for all flowers are so beautiful and lend themselves so readily to graceful combinations, that a knowledge of what colours may best be used together, and when, with a few lessons—actual practical demonstration by an accomplished artist—would suffice for ordinary purposes. But where are such lessons to be had? Machinery in motion, working dairies, bee-driving, and many similar methods of popular education are established facts at public exhibitions, but floral decoration has advanced no further than a mere exhibition of finished work. If the managers of horticultural societies wish to add a feature to future exhibitions that will attract the public and afford greater gratification than anything that has yet been tried, let them secure the services of a good floral decorator—a man who cannot blunder at his work, of fluent speech and polished

address—a lecturer, in point of fact, and let him have a large table with vases and flowers of his own selection, so placed in an enclosure that as many persons as possible may look on. Then let him show how cut flowers can be made to look best in vases and other vessels suitable for sitting-rooms, corridors, and wherever they are required, in a variety of ways for dinner-tables, and also in hand and buttonhole bouquets, explaining the reason of all he does, and answering the very numerous questions with which he is quite certain to be assailed. It may very safely be predicted that this would be a step onwards so highly appreciated that the lecturer and not the public would tire first. It would, moreover, tend more than anything else could do to instruct and aid many a willing anxious learner, rendering his duties in floral arrangement easier to himself and satisfactory to his employers.

Tasteful combinations of flowers and foliage that harmonise not only in colour but in form, are our chief aim in this work. Avoid mixtures of gaudy colours: if scarlet is the chief colour use no yellow shades, but rather choose white for contrast. For example, just now the bold scarlet flowers of *Vallota* are plentiful, so also are the lovely white flowers of *Anemone Honorine Jobert*; try them together, using the *Vallota* blooms singly for a groundwork, out of which springs the white *Anemone*, also single, yet with the flowers gracefully clustering. This is a charming mixture for a dinner-table, and serves to illustrate my meaning both in its application to form and colour. In so treating a Marsh stand lately the *Vallota* flowers in the bottom saucer had a bold fringe of Fern fronds, a few small sprays of Maidenhair Fern rose among the mingled white and scarlet flowers, and around the glass stem was twined a spray of *Selaginella cæsia* with the lovely bluish metallic hue well developed, partly hidden by tufts of half-opened *Anemones*, dried Quaking Grass, and a couple of leaves of *Geranium pratense* which clustered around the base. The same flowers were repeated in the tops with the addition of bold clusters of scarlet-flowered *Begonia fuchsoides*. Had this stand been for a daylight decoration some spikes of single blue branching Larkspur might have been used with excellent effect. But blue never answers for lamp light, and is never used because it looks black, just as yellow becomes an unsightly shade of white under artificial light, and is, therefore, always avoided for dinner-table work.

Before turning from the blue flowers a recent success with some may be noteworthy. A large glass fish bowl had its edge boldly but not heavily fringed with Fern fronds, through and between which the clear, flashing, transparent water was visible. Upon the Ferns rested broad circles of *Gloire de Dijon* Roses in clusters; between the Rose clusters the white flower spikes of *Ligustrum japonicum* projected irregularly, two or three being made to droop downwards upon the green fringe, and the centre was entirely filled with spikes of single branching Larkspur, principally of blue shades, with a mixture of pink, a few curved deep blue spikes bending charmingly over the Roses, while a dozen or two clusters of dried Quaking Grass (*Briza minima*), springing irregularly out of the central flowers imparted a pleasing air of sprightliness and finish to the whole. This was for a daylight repast.

Pink and carmine are excellent colours for the groundwork of lamp-light decoration, and it should be added they are equally effective by day. *Coleus Sensation* from the rich carmine centres of its foliage answers admirably for the dinner-

table; Maidenhair Fern, Anemone Honorine Jobert, and white Begonia flowers being all that are required with it to form a chaste combination that lights up well. Some shades of pink are not liked so well as others, the deep purplish-pink of *Anemone japonica* being avoided for brighter shades, such as we have in the flowers of the old variegated bedding *Pelargonium Manglesii*. Insignificant as these are in a bed, yet they are of so much use for all arrangements of cut flowers as to be eagerly sought after whenever they are in bloom. Nothing can be more lovely than a groundwork of pure white Roses with *Pelargonium Manglesii* flowers mingled with and springing out of it. For the dinner-table it, perhaps, is most liked in tall slender glasses managed in this way: Each glass first has four sprays of *Selaginella caesia* put in so as to be gracefully pendant, and most of it long enough to rest upon the tablecloth, then come six or eight of the small pink *Pelargonium* trusses, two or three very choice little fronds of Maidenhair, and half a dozen clusters of dried Briza. Sufficient slender glasses must be so dressed to form a double chain around a eup or whatever is used for the centre of the table. Care is taken not to crowd the glasses, and the pendant chain is formed by twining two sprays of *Selaginella* together, so as to gracefully connect the glasses. The last time I so used them was for a small table, and only about a dozen glasses were required, but above them five small transparent fish-bowls were suspended by very fine wire from a chandelier, four of them forming a circle, with the fifth suspended a little lower from the centre. Much longer streamers of *Selaginella* were used in the bowls, a pendant chain being made from bowl to bowl just as from the glasses below, only it was much bolder in character. White Fuchsias with bright pink corollas were used with Maidenhair Fern in the four outer bowls, and another Fuchsia with large rosy pink flowers in the central one. Briza maxima was used in the suspended globes instead of the smaller variety, to give due importance to the central group.

Of white flowers there are many which are found most useful whenever they are to be had. Lily of the Valley is so exquisitely graceful that it would seem impossible to arrange it badly, and yet it may sometimes be seen woefully crowded. Roman Hyacinths, too, are very lovely and answer admirably for slender glasses. Stephanotis reigns supreme from spring till autumn, and may be used in a variety of ways. What can be more suitable for a boudoir-table than a basketful of its sweet-scented flowers mingled with delicate Fern fronds? Not long ago I used it for a small dinner-table successfully in a somewhat novel manner. Three small transparent glass bowls were put in the form of a triangle upon a flat stand covered with crimson plush, a fourth glass was placed on the top of the others in the centre, and then they were dressed with *Selaginella caesia*, Stephanotis, and dried spikes of Briza minima. Four flowers only of Stephanotis were required for each of the three lower glasses, and six flowers for the upper one. Four of these little groups were prepared, each upon its crimson stand, and they were so placed upon the table that the *Selaginella* sprays met upon the cloth. The effect was very chaste and lovely.—EDWARD LUCKHURST.

HARVESTING ONIONS.

SOME Onions which were sown early in spring and formed good bulbs in July and August now have their top growths bent over and the bulbs hard and dry. All such should be drawn from the soil at once, but they should not be taken under cover yet. Some allow them to lie on the ground where they were grown, but we think they do not dry quite so well or quickly as if spread out on a gravel walk, especially in wet weather. The bulbs should be removed to the walk and be placed in a single layer. After remaining in their first position for two dry days they should be turned over, and this operation may be repeated until they are all firm and dry. Those which are smallest in the neck at drawing time will dry first, and if really good winter-keeping Onions are wanted it is well to select the smallest-necked bulbs, drying and storing them by themselves. Those with very thick green sappy necks should have a good part of the top growth cut away, and the remainder well twisted round to press the sap out. These thick necks are easily selected from the others, and they are easily seen in the beds, as they remain standing straight up after the

others have fallen. Some weeks before the roots are to be drawn it is a good plan to examine the beds and bend all the thick growths. This stops their growth and assists the ripening. Those who give a little attention to Onion culture, however, have seldom many of these objectionable thick-necked bulbs in their beds by the autumn, as many are taken out at the spring thinnings and for use throughout the growing season.

A dry day should be chosen for removing the Onions from the ground, and it is better to leave them out far into September to secure this than to take them in wet. When suitable weather cannot be secured the best way of dealing with them is to take them into some open shed or loft and dry them there. They are improved by being exposed to the sun, if it is only for a few days at first, and they may be finished off in sheds afterwards. In any case they ought to be well dried before being placed in their winter quarters, and the larger the bulbs the more drying they require. Green tops should never be seen on them when being stored. I daresay others besides myself have noticed that the flavour of Onions in winter is influenced greatly by the way they are harvested. If not properly dried and they are afterwards stored in heaps or in a close place they appear to ferment to a certain extent, and lose much of their original flavour.

As to the length of time needed to dry Onions thoroughly, much depends on the state of the bulbs and the weather. As before hinted, small-necked bulbs are often nearly dry and ripe before being pulled, and they do not require to lie long before being ready for storing. As a rule we allow our Onions to remain in the open from eight to fourteen days, and if the weather is dry at the end of the time they are moved in at once.

As to the best keeping Onions, no variety we have tried has lasted in good condition so long as James's Keeping. Improved kinds of Onions we have in numbers, but their introducers have evidently had nothing but size in view when they were selecting them. The place to store Onions in winter generally depends on the accommodation each cultivator has; some having excellent places for them, others having to do the best they can. Any shed, whether it be well lighted or nearly dark, is suited for keeping Onions in, always providing it is dry and cool. Frost or a high temperature soon causes decay, and heat does more harm than cold. In the spring of 1880 we sowed some favourite Onion seed along the bottom of a wall with the intention of securing bulbs from which to save seed, and these remained out all last winter, exposed to 20° or more of frost without being injured, as at the present time we have a fine lot of seed on them. In winter our Onions are given much the same treatment as our Apples and Pears, and we always manage to keep them well until they are plentiful in the open quarters again.—A KITCHEN GARDENER.

THE ART OF COLOURING GRAPES.

THE principal art, it appears to me, that is requisite in imparting to Grapes a rich dark bloom, consists in the negative exercise of following Nature. "SINGLE-HANDED" is undoubtedly right in presuming that a full and free circulation of air is necessary during the colouring process. The condition of outdoor Grapes in autumn tells us this; and they tell us further, as plain as berries black as Sloes can speak, that a high night temperature is not so essential as we artists think for finishing black Grapes, at least so far as regards their appearance. What is really essential is powerful root-action, and this, in the case of outdoor Vines, is in fullest force when colouring commences. Some shade, too, is also needful, for black Grapes that are shaded by the foliage are almost invariably better coloured than those exposed to the sun—hence the reason of the general want of colour on Grapes this year that ripened during June and July. No one visiting the exhibitions that were held during the hot period could have failed to observe the brown or mahogany hue that was visible on most dark Grapes, and the same character was apparent in the windows of the best fruiterers' shops. Those who were "on the move," too, during the period indicated would find that the Grapes, as a rule, were much better coloured in the western counties than in the eastern, the reason of this being that the heat in the former district was not nearly so prolonged as in the latter.

The Vine, it may be well to remember, is not a climbing plant as many suppose, but a trailer, and its fruit hangs beneath the leaves and is not exposed to the sun. This fact ought to teach us that it is a very easy matter to remove too many laterals from Vines just before the Grapes change for ripening. If the weather proves very hot it is far better to remove no sub-laterals at that time, and if there is a fear of these unduly shading the principal leaves, let the laterals be drawn downwards and hang down among the bunches, and down the back wall. These growths have not an exhausting effect but rather the reverse, for they

are great incentives to root-production; and if the chief leaves are kept clean and are fully exposed to the light, and air is admitted freely, they will always elaborate the additional sap that is provided by the additional roots consequent on the free growth of the laterals, and the Grapes profit by the additional food and natural shade.

There appears to be two extremes in Vine-dressing that are extensively indulged in. One is permitting too many primary or fruit-bearing laterals to extend, and consequently there is no thoroughly developed and perfect foliage; the other is thinning the chief laterals sufficiently, and then rigidly, often too rigidly, stopping the subsequent growths regardless of the state of the weather.

Overcropping, or in other words defective root-action, is the primary cause of defective colour. A Vine may be overcropped even if the bunches are few and small. The fruit alone does not afford sufficient evidence for determining the point as to whether Vines are overcropped or not. One Vine may be lightly cropped with 30 lbs. of Grapes, and another too heavily cropped with 15 lbs.: in this matter everything depends on the root-action, the food, and the working power of the foliage.

It is a long time since I have seen so many brownish-black Grapes as I observed at the June and July exhibitions this year, which I attended in the capacity of—A JUDGE.

DISBUDDING CHRYSANTHEMUMS.

It is a most difficult task to select the proper buds to produce good flowers. The present is the time to disbud, and whether the crown bud or the terminal bud be chosen depends in a great measure on the strength of the plants and the experience of the grower. Weakly plants that have been stopped once or more now have several shoots. On examination these will be found to have a small bud in the centre of two or three young growths—this is what is known as the crown bud. If the growing shoots are removed at once this bud will in most cases swell and form a large flower, and from this crown bud many exhibitors obtain their largest flowers, more especially in the Japanese section. If, however, the shoots which appear with and around the crown bud are left the bud will not swell, and the young growths will perfect themselves by making about another foot of growth, and each bearing buds at the point. These are what are termed terminal buds. The difference in this case is, that instead of the centre bud being surrounded by young growths as in the case of the crown bud, they are surrounded with other flower buds, as it is natural for the Chrysanthemum at that time of the year to bloom in clusters. Good flowers of many varieties are obtained from the so-called terminal buds, but of others there is not substance enough to be obtained from a terminal bud for an exhibition flower. Experience and observation will soon enable anyone to determine what bud to retain.

I purpose fully considering this important autumn flower, and hope other correspondents will assist me by supplying any information in determining the various sections. A large field of observation is open, and much good may be the result.—J. W. MOORMAN.

DESTROYING HORNETS' AND WASPS' NESTS.

If your Sidmouth correspondent will try the following plan he may destroy the hornets he complains of, although the position of the nests seems rather difficult to deal with. The one high up the brick wall I would deal with as follows. At night, when all the hornets are supposed to be in their nests, get say a pint of turpentine and a garden syringe with rather a coarse rose and forcibly syringe the nest; by this plan the nest will be cut into shreds and the hornets killed or dislodged, as they cannot endure turpentine, which causes almost instant death to those it touches. If, however, there is anything trained against the wall in question, it would be well to nail a mat or something of the kind on the wall before syringing. I have this season destroyed a hornets' nest similarly situated. The nest between the lath and plaster and brick wall I would treat as follows. Well saturate some cotton wool with turpentine, and with it stop up the crevices of the lath and plaster. This must be done when the hornets have ceased working for the day. For wasps or hornets in the ground the same method is applicable, but in light soils there is sometimes more than one outlet, and the application may have to be repeated.—G. R. ALLIS, *Old Warden Park*.

IN reply to a Sidmouth correspondent, I submit an easy way of destroying wasps or hornets, and one which I have not found to fail. I took a wasp nest on Friday last, and I have found that

the insects are not merely stupefied by the plan I adopt, as they are by some other methods, but are killed. I obtain three pennyworth of spirits of turpentine in a small bottle and cork it up closely until it is used. The cork is simply withdrawn and the bottle forced into the entrance to the nest. Whether the turpentine all runs out of the bottle or not does not matter, provided the hole is stopped up and air is excluded. By this plan the insects are destroyed, and no fire nor anything else is needed.—J. B.

CIMICIFUGA SPICATA.

THE accompanying woodcut represents a portion of the flower spike and leaf of a *Cimicifuga* growing in Mr. Ware's nursery under the above name. It is similar to *C. racemosa* in general form, the flower stems being several feet in height, and bearing

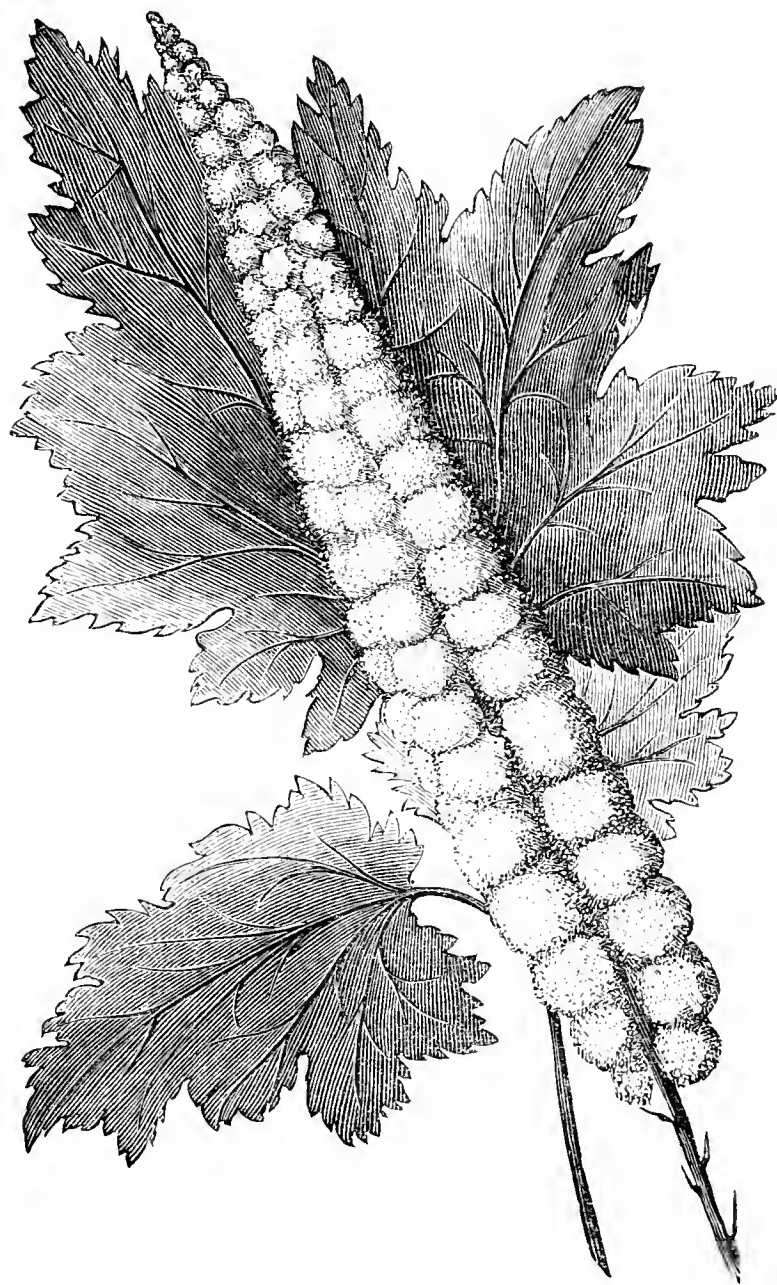


Fig. 40.—*Cimicifuga spicata*.

the small white flowers closely packed on lateral and terminal branches. Being late in flowering it forms a conspicuous object in the borders during August and early September, and may advantageously receive the attention of cultivators. Ordinary garden soil suits it very well, and when large clumps have been formed the plant is really a valuable addition to the list of effective hardy plants.

MINT V. MENTHA.—When recently visiting an English public park my attention was attracted by a bed containing apparently two forms of the now popular dwarf Mint, *Mentha Pulegium gibraltarium*, one much darker in colour than the other. Desiring to ascertain the name I accosted the nearest workman, and thinking to make my question as intelligible as possible I asked, "What Mint is that in the centre of the bed?" "That ain't a Mint, sir; it's called *Mentha pruleja*." With which rather surprising piece of intelligence I was obliged to be content, reflecting

what a promising recruit my informant would make for the ranks of those who advocate a general adoption of English plant names.—SIMPSON.

STRAWBERRIES.

THE present is a very good time to make a new Strawberry bed. The soil is moist and the runners are unusually well rooted. The land should be deeply dug, and some well-decayed manure added if the soil is poor and of a light nature; if the soil is of a heavy character the manure need not be much decayed. The strong-growing Strawberries, such as Sir J. Paxton, should be 2 feet from plant to plant and 2 feet apart in the rows. Keens' Seedling need be only 1 foot 6 inches from plant to plant. It is not at all a bad plan to allow 2 feet 6 inches after every third row, which will allow more space for gathering the fruit; you can pass along the wider space and gather one row and half another, then go to the other side and finish the other row and a half. If a large quantity of fruit is wanted in a short time the plants may be set out much nearer together, and some of them taken away after the second year. In this case Sir J. Paxton and other large sorts need be only 1 foot apart either way. The ground should be trodden firmly before being planted, particularly at this time of the year, for if it is not left firm the frost frequently draws the plants out of the ground in winter. A little manure spread over the surface of the ground is very useful in checking this. The other day I saw Forman's Excelsior recommended as a valuable acquisition. If any of your readers have tried it I should like to hear their opinions.—AMATEUR, Cirencester.

Now is the time for transplanting Strawberries. All ours were put in new pasturage a fortnight since, and they are now fully established. It has been a rule here to change the position of Strawberries every two or three years, and the consequence has been that we always have very large crops. The plants do not die in the old beds, but the soil becomes exhausted and the crops are light. I have observed this to be the case if the plants be kept in the same spot over two years. Our plants are twelve years old, but they are in the greatest vigour. The inner crowns no doubt gradually die, but there is always a large supply of strong crowns on the outside. This plan is of great importance where a man has 100 acres of this fruit.—PHILODENDRON.

CINERARIAS AND CALCEOLARIAS.

ALTHOUGH I have for many years grown Cinerarias and Calceolarias it is only comparatively recently that I could fairly understand and meet their requirements. At one time, in spite of every attention, a great percentage of plants would persist in dying, often without much warning and no matter how well established. Of course the knowing ones are thoroughly acquainted with the cause and its cure, or rather prevention; but I failed to discover it, and have to thank a more experienced friend for the remedy. "You keep them in too hot a position," said he, and ever since, instead of growing the plants in frames with a slope to the south, they are located in frames near a north wall and sloping to the north. Even in this position they are lightly shaded when the sun is bright, care being taken not to shade any longer than is absolutely necessary, and also to ventilate freely both night and day in order to maintain sturdiness of growth. Calceolarias are not of much service here, but of Cinerarias we are growing about two hundred, some already giving signs of flowering, and others are receiving their final potting. Not a plant gives signs of a collapse, neither will they unless when they are transferred to the house; and heated pits some of them are injuriously affected by the fire heat. We keep them in frames as long as possible.

A slated or gravelled staging, or both as the case may be, well removed from the hot-water pipes in a house where only sufficient fire heat to dispel dampness or keep out the frost is employed, will be found to agree with both kinds. Where there is a conservatory to be kept gay, then the general effect has to be studied; but where Cinerarias and Calceolarias are grown more as a hobby, then by no means place them with greenhouse plants generally, but rather arrange them in groups. By these means they are far less liable to be infested with insect pests, and as the colours and markings are very diverse the beauty of one is enhanced by contrast with another, the rich green foliage, which ought always to be preserved, being sufficient greenery.

Other cultural details, which I will briefly touch upon, I really regard as of minor importance. The seed for the earliest batch of Cinerarias is sown towards the end of March or early in April, and two more sowings are made at monthly intervals. Large shallow pans well drained are employed, filling these to near the

surface with light sandy soil, and finishing off with a layer of sand. A watering is given with a fine rose, and in a few hours the seed is sown thinly, pressed in with the clean portion of a flower pot, and very slightly dusted over with sand. The pan is placed on a cool greenhouse shelf, closely covered with glass and well shaded with paper till the seed has germinated. The glass is then tilted, shading being applied when necessary, and when the seedlings have their second leaves they are transferred to a cold frame. The seed being sown thinly pricking-off is unnecessary, but before they are much crowded and when easily handled they are potted singly into 3-inch pots, and from this size and before becoming much root-bound they are finally transferred into either 6 or 8-inch pots. The last pan of seed, I ought perhaps to state, is placed on the north side of a wall in the open air, and every good seed invariably germinates. Nearly half leaf soil may be used for the plants in the earlier stages of growth, and for the final potting about three parts of loam to one each of leaf soil and decayed manure may be given, using some sand in each instance. Rough fibrous loam for the last potting is preferable, but good Cinerarias are often grown in fibreless loam, more than ordinary care in this case being taken with the drainage. The pots must always be clean and well drained, and the plants should be potted rather firmly and up to the collars, weak liquid manure to be given frequently when the flower heads are developing. Aphides form the greatest enemies to this class of plants, and must be destroyed by frequent mild fumigations with tobacco paper. Heavy fumigations prove very injurious; and although dipping the plants in a tub of some insecticide in solution is a thorough cure, it also is liable to disfigure the foliage, the settlement being especially objectionable. Much may be done with a small hair brush if used in good time for the removal of insects.

Much of the foregoing is also applicable to the herbaceous Calceolarias. We make one sowing of these at the end of July or early in August in a manner similar to the latest sowing of Cinerarias. The seed being minute is with difficulty sown thinly; consequently the seedlings when large enough to handle are pricked off in pans of light soil and placed in handlights behind a north wall. Before becoming crowded they are potted singly into 3-inch pots and returned to handlights or a frame still under the wall. Here they are kept somewhat close till established, and before becoming root-bound the strongest are shifted into 8-inch pots, and the weaker into 6-inch pots, and returned to a cold frame. To give them a good start they are again kept close for a week or ten days, lightly damping the foliage on clear days. At no time should Calceolarias be dry at the roots, and they are all the better for standing on a moist base. If wintered in frames air should be given on all favourable occasions. If it is preferred to have them in a cool greenhouse place them near the glass, covering the shelves if possible with a layer of moss. By potting the strongest as they require it, the batches will form a succession; but if it were required to still further prolong the display more seed would be sown late in September, and from the two sowings the flowering season would extend from late in April till July. For ordinary decorative purposes it is not advisable to pinch out the bloom heads of either Cinerarias or Calceolarias, and if either kind are allowed to become root-bound in small pots premature flowering will result.—W. I. M.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THE autumn Show of this old-established Society was held, as usual, on the first Wednesday and Thursday of the present month in the Waverley Market, Edinburgh. There is always a thinness apparent at these autumn shows, fruit constituting the main feature of the schedule, and plants holding a secondary position. From having the fruit, vegetables, and cut flowers mainly on the one side of the building and the plants on the other the thinness of the material was more noticeable than it otherwise might have been. Dividing as it were the Exhibition into two halves were a series of large tables down the centre of the Market, mainly filled by nurserymen. The most striking of these groups was that from Messrs. Ireland & Thomson of Craigleith Nursery. Several of the Crotons which secured them first honours at Manchester were effectively set up in telling positions; two grand Pitcher-plants were conspicuous at each end, and many fine new Dracaenas, &c., were freely used in the arrangement. Messrs. Downie & Laird, West Coates Nursery, filled another of the tables with huge Lantanas and other Palms, and many smaller fine-foliage plants on the sunny side of the table, while on the north side were representative collections of cut florist flowers. Another table was furnished by Messrs. T. Methven & Sons, of Leith Walk Nurseries, similar in style to the one just noted, but without flowers. Messrs. Dicksons & Co., Waterloo Place, made up the end table with a collection of plants, conspicuous amongst which were some grand Dicksonias, two large basketfuls of *Primula capitata*, very quaint-looking in the mass, and a collection of the fine Pinks for cutting which this firm is working up. The other central table was filled with

competition Ferns, and other plants in competition. At the west end of the building The Lawson Seed and Nursery Company had an oval arrangement on the floor of the Market, in which flowering Lilies, fine Phormiums, and other foliage plants were conspicuous. Many Palms, as well as other foliage plants dotted singly about the Market, were supplied from the Royal Botanic Garden. A table which attracted attention from the same garden was occupied with economic, medicinal, carnivorous, and other curious plants.

In the plant classes the chief prizes were offered for a table of plants artistically arranged. Two competitors only came forward; A. Paul, Esq., Gilmore Place, being first with one in which Orchids helped the arrangement greatly, the other table being deficient in flowers. The stove and greenhouse flowering plants and the Heaths were fine for the lateness of the season. In the class for six stove and greenhouse plants in flower Mr. John Paterson, Millbank, was first with a very good specimen, Mr. Paul, Gilmore Place, being second with scarcely inferior plants, though wanting in Heaths. In the class for three of these the same exhibitors were again first and second. For two Mr. McFarlane, Moredun, was first; and Mr. J. Shearer, Merchiston, second. A really grand *Lapageria rosea* was one of the second-prize plants. For three Cape Heaths Mr. Paterson was first and Mr. McFarlane second, both with good half-specimens. The foliage plants were rather weak on the whole. Mr. R. M. Reid, Edinburgh; Mr. Paterson, Mr. G. McLure, Trinity Grove; and Mr. S. Graham, Kibrassock, being the principal prizetakers. Ferns we have also seen better, but it is interesting to note that one of the most successful exhibitors was a letter carrier, Mr. A. Anderson, of 19, Pilrig Model Buildings. He took first prizes for Todeas, Filmy Ferns, dwarf-growing Ferns, and British Ferns. The Orchids were not numerous, but some good pieces were staged, a grand plant of *Oncidium incurvum* with four spikes being notable. Mr. J. McLeod, Brentham Park, Stirling, Mr. Paterson, and Mr. Paul were the prizetakers. The other classes were not specially noteworthy.

FRUIT.—The exhibits in these classes were arranged on three tables, and formed one of the best shows seen in Edinburgh during the past few years. The Grapes were not so large as many that were set up at Manchester a fortnight previous, but they were well finished generally. The Peaches and Apricots were much finer than at Manchester. For a collection of fruits, twelve sorts, Mr. McIndoe, The Gardens, Hutton Hall, York, and Mr. McIntyre, The Glen, Peebleshire, were the only exhibitors, the first prize going "over the border." This was an even and good collection, the Duke of Buccleuch, Golden Champion, and Gros Guillaume Grapes being well finished; but Black Hamburgs were rather deficient. Barrington and Alexandra Noblesse Peaches were also very fine. For eight sorts, Pines excluded, Mr. McKelvie, Broxmouth Park, Dunbar, was first, his collection containing very finely finished Muscat of Alexandria and good Black Hamburg Grapes, with fine Peaches and Nectarines. Mr. McIndoe was a remarkably close second, his smaller fruits being decidedly better, whilst his Grapes were weaker than those in the first collection. Mr. McIntyre was third.

For twelve bunches of Grapes, six white and six black, Mr. McKelvie was first with fairly good examples of Alicante, Gros Colman, Muscat of Alexandria, and Buckland Sweetwater among others. Mr. McIndoe was again a very close second, Gros Guillaume, Trebbiano, and Duke of Buccleuch being specially good. Mr. Mackie, Woodlands, Darlington, was a good third. For eight bunches Mr. McIndoe was the only exhibitor, and obtained the first prize with some well-finished Grapes. For four varieties the competition was very keen. Mr. Kirk, Norwood, Alloa, being first with Gros Colman, grand; good Black Hamburg, and Mrs. Pince and Muscat of Alexandria in good order. Mr. McKinnon, Melville Castle, Lasswade, was a close second; Mr. Boyd, Callander Park, Falkirk, being third with small bunches but grandly finished. In the two bunches of one variety the first-prize Black Hamburgs from Mr. Kirk, the Mrs. Pince from Mr. Brodie, Glen Mayrie, Galashiels, and the Muscat of Alexandria from Mr. Calderhead, Wemyss Castle, Fife, were particularly good. In the single bunch classes the competition was keen. Mr. Calderwood's Muscats were again fine here, so were also the first and second Black Hamburgs from Mr. Kirk and Mr. Boyd; the Gros Colmans from Mr. Lees, Hillsborough Castle, Ireland, and from Mr. Boyd; the Black Alicante from Mr. W. Collins, Walkerburn, and from Mr. Boyd; and the Lady Downe's from Mr. Kirk and Mr. Boyd. A fine bunch of Duke of Buccleuch came from Mr. Scott, Carbery Tower. The finest-flavoured white Grape was Duchess of Buccleuch from Mr. Calderhead, and the finest-flavoured black being an Alicante from Mr. Boyd. Mr. Simpson of Wortley near Sheffield exhibited a collection of Grapes stated to have been grown in a night temperature ranging between 35° at the bursting of the buds to 65° at the ripening of the fruit. The varieties were Muscat of Alexandria, Lady Downe's, Mrs. Pince, Alicante, Black Hamburg, Raisin de Calabre, and Gros Guillaume. They appeared to have been badly packed, and in consequence had been considerably rubbed on their journey; but apart from that they were not in good condition, and the gardeners present were not impressed with the economy of the system.

Pine Apples were not largely shown, Mr. Murray, Maybole, being first in the class for two Smooth Cayennes, and Mr. McIndoe second. For any other sort Mr. Murray was again first, showing Lady Beatrice Lambton. Peaches were not numerous either, but the size of many of the fruits was surprising. The Judges selected quality and colour, as the smaller fruits were placed first. Mr. Ewan Cameron, Moffat,

was first for twelve, and Mr. Buntin, Gilmerton, Drem, first for six fruits. In the Nectarine classes Mr. McLeod was first in the one and Mr. McLean, Vintner's Park, Maidstone, in the other. Figs, Pears, Apples, Gooseberries, Currants, &c., were fairly well shown, and some good hardy fruit was shown in collections of ten sorts; Mr. Brunton, Gilmerton, being first here, and Mr. Barric, Salton Hall, Tranent, second.

Vegetables were fine indeed in the classes for particular sorts; we have never seen better exhibits in Edinburgh. The collections were scarcely up to the usual standard. Celery was quite equal to that at Manchester, which is saying a good deal, Mr. James Brown, Crieff, taking first. Leeks from Mr. McKelvie, Broxmouth Park, were first, and were a grand sample; some of the longest blanched Leeks we have ever seen were passed over, the want of corresponding thickness being against them—quite 15 inches in length was perfectly blanched in these. The Onions, Lettuces, Beet, &c., were all fine. Potatoes were not a large show, for twelve sorts Mr. McKinnon occupying first place with the finest examples, though perhaps overweighty for many fanciers.

In the cut-flower section was much of ordinary quality, at the same time many fine collections were staged. The Roses were good for the lateness of the season, those from Messrs. Cocker & Son, Aberdeen, causing quite a sensation on account of their size and brightness of the blooms. This firm showed boxes of fine blooms of Alfred Colomb, Comtesse d'Oxford, Marie Baumann, and La France. Many of the blooms in their first-prize twenty-four were equally grand. Messrs. H. Dickson, Belfast, was second with very creditable blooms; Mr. T. Smith, Stranraer, also showed well. Mr. A. Hill Gray, Dunkeld, was first in the class for twelve with a fresh and clean lot. For twelve Quilled Asters Mr. T. Menzies, Carbery Manse, Musselburgh, was easily first with handsome blooms, large, full, and globular, and clear in colour; the Victoria Asters from the same exhibitor were also fine; Dahlias were generally good. Messrs. Downie & Laird being first for twenty-four Show and twelve Fancies; Mr. J. Walker, Linlithgow, for twelve Show; and Mr. Black, East Calder, for six Show and for twelve Fancies. Phloxes were good, Mr. Ewan Cameron being first. Zonal Pelargoniums in trusses of three were bright. Hollyhocks were poor, also Gladiolus. Amongst miscellaneous exhibits were a couple of flowers of a very fine variety of *Cattleya gigas* from the Brentham Park collection. Messrs. Tod & Co., Maitland Street, had an assortment of bouquets, crosses, &c., and a centre plant arranged with flowers for dinner-table—a beautiful exhibition. Mr. Kilgour, Kilmarnock, showed a few good Gladiolus, and a stand of Phloxes and Pentstemons; Messrs. Downie & Laird a seedling *Lobelia* named "Miss Duncan," for which a first-class certificate was awarded; it appears to be a cross between *speciosa* and *compacta*, and is clear blue in colour. Messrs. Ireland & Thomson had a similar award for four new Crotons, these were C. Thomsoni, C. Duke of Buccleuch, C. Whittoni, and C. Houldsworthi. Mr. Turnbull, Bothwell Castle, also had a certificate for a new Erica named Thomsoni, a beautiful and distinct variety in the way of *E. limioides superba*, and from its habit and style of flowering is likely to prove useful for decorative work.

The general arrangements were as usual most efficiently carried out by Mr. Young and his assistants. A very large number of gardeners visited the Show.

FRUIT-GROWING AT WIMBLEDON.

FACING the Common, and near where the camp is held, is situated Fieldheim, the residence of F. Rodewald, Esq., a small but very neat and clean establishment, and conveying a lesson respecting what may be done in a small garden. Fruit is the principal attraction, and accordingly we find a range of half-span houses devoted to it which are very light and suitable for the purpose. The first compartment is 30 feet long, and is used as the earliest vinery. Mr. Bennett, the gardener, stated he had cut about 130 bunches, averaging 2 lbs. each, from the house, and commenced cutting on the 24th of May. The next house is 40 feet long, also a vinery, with a fine crop of good useful fruit of such varieties as Black Hamburg, Lady Downe's, Muscats, and Alicante; some bunches of the first-named were remarkably good in size of bunch, berry, and colour. In all there were about two hundred bunches. Another vinery also contained a fine crop, bunches about 2 lbs. each. Under the Vines were some fine Peaches and Nectarines, including excellent specimens of Noblesse, Barrington, Grosse Mignonne, and Late Admirable Peaches; of Nectarines Elrue seems a great favourite; there are also Hardwicke Seedling, Rivers' Orange, Pine Apple, and Victoria. About forty-two dozen fruit has already been gathered in this house, but there still remain numbers of fine fruit. A small compartment in the middle of the range is devoted to Bananas, which are successfully cultivated. 46 lbs. of fruit were taken from a plant in June, and another appears likely to produce a similar crop.

There is also a later house, about 60 feet long, adapted to the culture of Vines and Peaches. The varieties of Grapes are principally Black Hamburg, Gros Guillaume, and Alicante, bearing about 200 bunches, averaging 1½ lb. each, in good condition.

Under the Vines are Royal George, Late Admirable, and Golden Eagle Peaches, and Elrue Nectarines. These trees are heavily laden with fine fruit of excellent quality, Elrue Nectarine and Royal George Peach being the most noteworthy. The back wall is covered with Brown Turkey and other Figs. An adjoining span-roofed Peach house, about 60 feet long by 20 feet wide, has six trees covered with promising fruit, Royal George carrying about fifteen dozen, Noblesse ten dozen, Millett's Mignonne eighteen dozen, and Elrue Nectarine again with twelve dozen remarkable fruits.

A long span-roofed house with several partitions is devoted to Melon and Cucumber growing. From one compartment 250 Melons have been cut, some of which were exhibited at Wimbledon, and though not for competition were highly commended. Reid's Scarlet-flesh and Golden Perfection are held in high esteem. Another very promising crop is coming on. In another compartment are some very fine specimens of the most useful Orchids, also a good collection of table plants, which seem in strong demand at this establishment. Some of the Crotons were very highly coloured. A good collection of Zonal Pelargoniums are grown for flowering in pots. A fine lot of Azaleas and other plants were noticeable, also a collection of healthy Chrysanthemums.

The kitchen garden although small is well stocked, not a spare foot of ground can be seen. Some fine pyramid Apple and Pear trees are well laden with good even fruit. The flower garden and lawns are neat, and a fine conservatory attached to the dwelling contains healthy Camellias and other plants, the Fuchsias trained to pillars being remarkable for the profuseness with which they flower. Good management reigns throughout, reflecting much credit upon the gardener.—J. P.

GREENHOUSE RHODODENDRONS.

FOR some time this useful class of plants was much neglected in private gardens, but during the past two or three years their cultivation has extended. The demand was small for a time, but it is now almost difficult to obtain plants of some useful kinds. The more recent introductions, of which Princess Royal is the type, are beginning to be plentiful; while Princess Alice, one of the very best, can scarcely be obtained except as very small plants, which require to be grown two or three years before they are of much service for decoration.

These plants are amongst the most useful we possess either for cutting or other kinds of decoration, and should be largely grown in every garden. Some of those classed as greenhouse varieties are very nearly hardy, and would, I feel confident, stand our winters in some parts of England and Wales. Rhododendron Gibsoni, R. Princess Alice, and R. ciliatum I have left outside all winter—not during one of our severest winters—and the plants were not injured in the least. It is not advisable to subject them to this treatment if the best results are looked for. If no better accommodation can be given a cold frame will suit them well. Some kinds do best when grafted, others succeed best on their own roots. Rhododendron Gibsoni does well worked on the common R. ponticum or any variety for a stock; while Princess Alice does not take well to a stock, but strikes readily with care and proper management, and grows well upon its own roots. R. jasminiflora does well either way, but grows strongest when worked. Princess Royal, which grows most luxuriantly and strikes freely, would no doubt make a capital stock for the more delicate growers.

When propagation is effected by means of grafting, clean stocks should be selected and established in 2 or 3-inch pots ready for grafting in the spring, say about the month of February. The tops of the previous year's wood should be used for the scions. The system of grafting should either be saddle or side grafting, similar to that employed for Roses or fruit trees. The former I consider the most successful mode. Little art is required in saddle-grafting. The cut of the stock or scion must be clean and done with a sharp knife, so that the two fit exactly together, being made secure by means of worsted. Some employ clay or grafting wax round the union after the scion and stock are placed together, but this is optional, and by no means indispensable. After the operation of grafting is performed the plants should be placed in a close frame where a slight bottom heat can be given, and the top heat maintained at 45° to 50° until the stock and scion are thoroughly united. The plants must be shaded from bright sun, kept well watered, and dewed with the syringe twice daily.

When the stock is increased by means of cuttings they can be inserted at once, selecting short growths of nearly ripened wood. Pots 8 inches in diameter should be prepared by half filling them with crocks, and the remainder with sandy peat pressed in firmly. About half an inch depth of silver sand must be placed over the

surface. Place the tallest cuttings in the centre and the dwarf ones round the sides, leaving sufficient room for the bellglasses, which should be placed over them after a good soaking of water has been given. The pots containing the cuttings should be plunged amongst any moisture-holding material in a cold frame until cold weather sets in, when the temperature if possible should be maintained at from 40° to 45°. The bellglasses will not require to be removed for a long time, as but little water will be needed, and sufficient can be given by syringing over the glasses occasionally. As soon as the cuttings are rooted they must be potted singly in small pots, and kept close in a frame until they have commenced to root afresh, and must then be exposed to more air to gradually harden them to be grown under cool treatment. The grafted plants when the scion and stock are thoroughly united may be treated similarly.

The hardening process must be gradual, or a severe check is sure to follow. The operation must be done with much care, then the young plants will continue growing. When severely checked in their early stages they often fail to grow satisfactorily. When they have been hardened to cool treatment and have filled the small pots with roots the plants should be transferred to 5-inch pots. This size will be large enough for the first season after grafting. The plants should be wintered in a greenhouse or frame, where free ventilation can be ensured.

The second season the object should be to obtain two growths, which can be accomplished by starting them early in the season by means of a little heat, giving at the same time sufficient air to cause a sturdy growth. The first growth should be completed by the beginning of July, and must have for a short time abundance of air until the flower buds are visible, which is sure to be the case with free-flowering kinds such as Princess Alice. The flower buds must be removed and the plants kept close again until they commence growth, which must be pushed on until completed. Flower buds may by chance be formed upon this second growth, and can be allowed to develop if deemed necessary. This is not altogether advisable when the plants are small; in fact they will make greater progress the following year if not allowed to flower. The freedom with which many kinds flower render them in a small state very attractive for vases and decoration generally. Where plants for such purposes are in request, and good-sized specimens are needed, they can be allowed to flower and only make one growth a season. Moderate-sized plants are best for greenhouse or conservatory decoration, and should, until they attain a fair size, make two growths a season. This is an advantage and saves valuable time.

Potting must be done carefully from time to time as the plants require it. To grow greenhouse Rhododendrons successfully every attention must be paid to this matter, as if allowed to become rootbound the wood hardens, and in consequence growth is weak and slow. They must not, however, be overpotted, or the evil will be as great as if the plants are in too small pots. The pots must be well and carefully drained and the soil pressed firmly in. The soil most suitable is good fibry peat with plenty of coarse sand to keep it porous. They also do well in a mixture of loam and peat, but the former is preferable.

Watering must be carefully done, especially after the plants are first potted, but they must not suffer by the want of water during any season of growth. If allowed to become dust-dry they soon fail to do satisfactorily; they also refuse to grow luxuriantly if water stagnates about their roots. During the growing season the plants should be liberally syringed, which will keep down thrips, the only insect I know that attacks them. Cultivators of these plants will not grow them satisfactorily upon dry shelves, where I have seen them placed in more than one garden. They should stand upon some cool moisture-holding material, such as ashes or gravel. During the summer or growing season plenty of water should be thrown amongst the pots and the atmosphere kept moderately moist. Under such treatment the plants grow rapidly and luxuriantly.—W. BARDNEY.

SHADING CAMELLIAS.—Perhaps the short note I wrote about Camellias was rather loosely constructed. I certainly do not mean to say, as "AN AMATEUR" assumes, that as fine flowers are produced from a plant in feeble health, and which in consequence makes a weakly growth, as from a plant of robust growth and in perfect health. I quite agree with him as regards shading. All our Camellias are shaded, and necessarily so, because they would not thrive in our structures without shade. However, they are to be found thriving in gardens without any shade during summer, consequently it is a question that no one can draw a hard-and-fast line about. Some growers, for instance, manage Orchids without shade. I have tried both plans, and find I can keep the plants healthy with less labour grown under

shade throughout the summer. I have seen Mr. Bardney's Camellias, and I acknowledge they have foliage much more beautiful than my plants have. Such plants must produce fine blooms. At the same time our plants always prove good flower-producers.—R. P. B.

OBJECTS OF SEX AND OF ODOUR IN FLOWERS.

[Read by Mr. T. Meehan before the American Association for the Advancement of Science.]

(Continued from page 135.)

BUT perhaps the most remarkable fact of all is that the statement of Dr. Gray, that anemophilous plants have flowers mostly destitute of odour, is probably incorrect. Certainly there is odour in a large number of anemophilous plants. In monœcious and diœcious classes colour or fragrance is usually present in the male flowers, and often both are there, but wanting in the female, unless in flowers with a conspicuous corolla, such as in Cucurbitaceous plants. In these cases the degree of fragrance is equal. But odour to a greater or less degree exists in the Willows, Poplars, Maples, Rhus, Spinach, Indian Corn, Palms, Sweet Chestnut, and others, but always in the male and never in the female flowers. Instead of anemophilous flowers being mostly destitute of odour, I have not been able this year to find any male flowers of this class that have not odour, with the single exception of the common field Sorrel (*Rumex Acetosella*). The Sweet Chestnut (*Castanea americana*) is indeed remarkable for the prodigious amount of odour and other material which, under prevailing notions of individual good, must be regarded as absolute waste, but which comes to be looked on as the height of wisdom under the laws involved in variation. As the branch grows the axillary buds which in many plants remain dormant till spring, and then perhaps make a new branch, push at once and make a spike of male flowers. A bunch of these will fill a room with fragrance. There are about fifty clusters of these flowers in a spike, five flowers in a cluster, five spikes to a branch; and hence twenty-five hundred male flowers, and these all fall before the female flower with its attendant male spike is formed, and which appear at the termination of the growth instead of at the axils. There is no conceivable use for this immense crop of precocious male flowers with its attendant fragrance under any law of reproduction; but if we take into consideration the immense number of minute creatures on the earth, in the atmosphere, in water, everywhere—and the evident design of Nature that they should be fed, we may understand under the laws of variation how even a Chestnut may be made to scatter this food in profusion through the atmosphere, even though not the slightest benefit to itself or to its race should follow the act. Even the views of Professor Huxley that the coal measures of England are the product of pollen which fell during thirty thousand years in the carboniferous era, are explainable under the operation of this law of variation for the purpose of ultimate universal good, but under no theory of individual benefit from natural selection that I can see.

In pursuing our studies of the odours of flowers, we shall find many difficulties in believing that they were developed for the chief reason of attracting insects for the purpose of cross-fertilisation. Not the least of these difficulties is the fact of many genera of showy-coloured flowers existing, which may have one or two species highly odoriferous and the rest destitute of scent. The Violets of Europe are of this class. *Viola odorata* is very sweet, the Pansy less so; the rest are comparatively scentless. American Violets show the same characteristics. I am familiar with many species, but I only know of *Viola primulaefolia* and *Viola blanda*, two nearly allied species, that would be called sweet. Has fragrance given these sweet species any advantage in the struggle for life? If so, it is, at least, not apparent. On the other hand, observation will show that the scentless flowers of this genera are just as freely visited as those which have odour. Of the many species of *Reseda* I only know of one that is fragrant, the common Mignonette. In my garden *Reseda undata*, wholly scentless, is as freely visited by bees as its sweet sister species. Again, it is a fact that among the sweet Mignonettes some are less fertile than others, and that the least productive have the most odour. Another remarkable case in which colour and fragrance in inverse proportion to productiveness is afforded by the genus *Rubus*—the Blackberry and Raspberry class. *Rubus odoratus* is beautiful and fragrant. How rarely its fruits are notorious. *Rubus cuneatus* is not high-coloured, but it is fragrant; not half the flowers produce anything usually, and many of those that do give but a very few carpels. *Rubus canadensis* has very showy white flowers but no odour, and its "herries" are generally more or less defective. *Rubus villosus* is less attractive than the last, and is more perfectly productive. But the most fertile of all the species is *Rubus occidentalis*. I do not know that I ever saw a flower that did not make a perfect fruit, and yet it has no odour, scarcely any petals, and these of such a green shade of white as to be actually inconspicuous. On the ground of variety in which fragrance is to play its part, and which must of necessity permeate all things, we can understand its uses; but we are lost when we attempt to explain such facts as these by any hypothesis that has for its foundation mere individual good.

May we not, then, logically say that sex in Nature is not primarily for reproduction, but to insure variation; that questions which properly come under this law of variation have but a remote relationship to questions of natural selection, but are referable to some external

power governing universal good, with which the individual governed has little but co-operation to do, and which as often tends to the destruction of individuals or races as to their preservation?

CHELONE OBLIQUA.

"TURTLE-HEAD" is the fanciful name applied to this plant in North America, and the generic name has a similar origin, both referring to the peculiarly arched upper portion of the corolla. Several *Chelones* are known in gardens, but the one of which a spray is shown in fig. 41 is probably the most generally grown by those who make a speciality of hardy plants. It has no pretensions to be considered a novelty, for it was found in Virginia by a Mr. Clayton more than a century and a half ago, about which time it was sent to England, and it was cultivated by Mr. Miller in 1732. In addition to the undoubted hardiness of the



Fig. 41.—*Chelone obliqua*.

plant, at least in the neighbourhood of the metropolis, it possesses another valuable recommendation—namely, that it produces its bright purplish crimson flowers at the end of summer and in the beginning of autumn when the flowers are becoming scarce and the borders unattractive. Almost any soil or situation suits it, though it thrives most satisfactorily in rich moderately light loam. It can be very readily propagated by dividing the plants, preferably about the present time or a little later, as, if the operation is deferred to spring, results are not always such as might be desired. Increase may also be effected by means of seeds or cuttings.

C. glabra, though formerly regarded as a distinct species, is now considered to be merely a variety of the preceding, which it resembles in most of its characters. *C. Lyoni* is also another form of the genus with pretty purplish flowers, and is well worth growing. Several other plants commonly seen under the name

of Chelonas are really Pentstemons, to which the former genus is very closely related.

Several specimens of *Chelone obliqua* amongst many other pretty plants were a week since very attractive in Mr. Ware's nursery at Tottenham, and from one of these the spray was obtained from which the accompanying engraving was prepared.

THE OLD WEIR, HEREFORD.

I AM sure that many of your readers will regret to hear that this classic home of the Rose is no longer to be connected with the name of the present tenant, Mr. Jowitt. Indeed as a place associated with the queen of flowers it will no longer exist. My good friend leaves it in November; his fine collection will be disposed of, and he himself is seeking a new residence. His long list of triumphs will not be added to so far as the Old Weir is concerned, and the wondrous blooms he has delighted us with will no longer grace our exhibition tables. I am sure that many will regret this, and only hope that in some new spot where he may pitch his tent he may initiate a new collection which shall still bring him to the front. By-the-by, does anyone want a thoroughly good gardener, especially as a Rose-grower? Then I may say Mr. Jowitt's gardener is open to an engagement in November. —D., Deal.



A GENTLEMAN who has facilities for seeing the best examples of fruit culture, writes as follows relative to MR. THOMSON'S VINEYARD AT CLOVENFORDS—"I called at Clovenfords last week. The sight is magnificent. Those great houses that have been described so often in the Journal are this year more grandly furnished than ever they have been, the Vines bearing the heaviest crop they ever had, and every bunch is perfect. I never saw such a sight. The crop of the Duke of Buccleuch is all gathered except a few bunches, and these are very fine, the flavour of the fruit being delicious."

— WE learn that arrangements have been made for discontinuing the practice of charging visitors a penny each "for the gardener" for inspecting the GREAT VINE AT HAMPTON COURT. We observe that the old Vine is showing signs of diminished vitality, and in all probability a good portion of the top of it will die either this year or the next. An endeavour, we believe, will be made to impart fresh vigour to the Vine, and we have little doubt that it might be done, since the fact has been ascertained that a good portion of the feeding roots are not far distant from the house, the popular idea that they are in the Thames having little to support it. By breaking up the ground near the house and using liquid manure and rich compost freely, reducing the crop for a year or two and increasing the foliage, the old Vine, we think, might be improved, and efforts ought certainly to be made to arrest its decay. Mr. Knight, who has for many years had the charge of the Vine and the private gardens at Hampton Court, will shortly retire, and will be succeeded, we understand, by Mr. J. R. Stirling, gardener to H. H. Vivian, Esq., Park Wern, Swansea, he having been nominated for the position by Mr. Jones of Frogmore, who has the chief control of all the Queen's private gardens around Windsor. Mr. Stirling is known to be an excellent gardener and cultivator of fruit, and he is unquestionably competent for the efficient fulfilment of the duties pertaining to his new charge.

— WE regret to hear from MR. BRUCE FINDLAY that he is suffering so much from exhaustion after his great efforts at the International Show at Manchester that he has been compelled to retire from his duties for a short time to recruit his health. This we can easily realise; but we are told that some of the prizetakers

at the Exhibition are impatient for their prize money, and that their importunities penetrate even to Mr. Findlay's well-earned temporary seclusion. Mr. Findlay desires us to announce that at the end of this week or beginning of next they will all be attended to. We are happy to announce, for the information of many who will be glad to hear, that Mrs. Findlay and her daughter "are much better."

— COLBURN'S MAGAZINE (E. W. Allen, Ave Maria Lane) of the present month contains an excellent lithograph portrait of MR. G. F. WILSON, F.R.S., who is so well known and highly respected in horticultural circles. A copious biography of Mr. Wilson also appears in the Magazine, in which his parentage and early life are sketched, his discovery of the distillation of glycerine noticed, his capacity for and success in business chronicled, and his connection with and works in horticulture narrated.

— MR. J. MUIR of Margam has sent us some sprays of CAMELLIAS GROWN WITHOUT SHADE, which are as fine as any cultivator could desire; yet they are not superior to others that have been sent to us which have been grown in partial shade. It is not necessary to publish further letters on this subject at present. We know that Camellias will grow without shade under certain conditions, as we have seen them in the open air in England, and even in Italy; but it is equally certain that under different circumstances judicious shade is beneficial, especially to plants in pots as grown by the majority of amateur cultivators.

— WE are informed that the GLASGOW AND WEST OF SCOTLAND HORTICULTURAL SOCIETY held their annual Show on the 6th inst., and was on the whole a good show, the cut flowers, Grapes, and plants being abundant. The best produce always goes to Edinburgh, and it altogether appears bad management to have what might be two good shows on the same day.

— A CORRESPONDENT observes, "In most of the London parks the new ALTERNANTHERA PARONYCHYOIDES MAJOR AUREA has been used freely this season, and when judiciously employed it is very effective. To my mind, however, a mistake has been made in many instances by placing *Alternanthera amoena* next to it in the carpet bed designs; the two colours do not harmonise, and several otherwise pretty designs are rendered unsatisfactory by this means. In one instance, by an unaccountable piece of bad taste this yellow *Alternanthera* was placed next to a line of Golden Feather, but this was quite an exception. The best mode of employing it that I have seen is where some soft grey or whitish plant is next to it. The silvery *Leucophyton Brownii* or *Sedum acre elegans* are particularly suitable associates."

— "L. D. W." writes, "At Chiswick VILMORIN'S DWARF WHITE ASTER was recently very conspicuous for its dwarf habit and the profusion in which its flowers are produced. This variety is by far the finest white I have yet seen. The flowers individually remind me of Mrs. Geo. Rundle Chrysanthemum; they are pure in colour and of much the same shape as the flowers of that variety. Benary's Dwarf Chrysanthemum Aster was also very striking, the flowers being a very bright crimson."

— "SCIENTIA" writes that "BOUVARDIA JASMINIFLORA FLAVESCENS has flowers of a beautiful straw colour, and is quite distinct from any other variety. The trusses of flower are not large, but the plant is worth growing for the pleasing colour. *Bouvardia Reine des Roses* is also a very desirable variety with rose-coloured flowers, which resemble miniature trusses of *Ixora* blooms. The trusses are large and very freely produced early in the season. Where *Bouvardias* are appreciated these two varieties should be grown, especially the latter."

— VERY noticeable in Covent Garden Market at the present

time is the quantity of SCARLET SIBERIAN CRABS or CHERRY APPLES exposed for sale. These pretty little fruits are the produce of a species of *Pyrus*, *P. baccata*, and are valued by many persons for the pleasant preserve prepared from them. In Siberia, the native country of the tree, a kind of punch is made from them. A dish of well-ripened fruits is a decidedly ornamental addition to the dessert at this season of the year, and the flavour though slightly acid is by no means unpleasant.

— A FRENCH writer, M. Roman, has recently stated that the cultivation of the SOJA HISPIDA has of late years been largely developed in Austria-Hungary, Italy, and parts of France. It is said to grow in any soil, and while the leaves and stems make an excellent fodder for cattle, the beans form a nutritious food for man. When roasted the seeds form an excellent substitute for coffee, and M. Roman thinks that the plant will pay better than the Potato. At present the retail price of the Soja Beans is 6*l.* per lb., but as the plant becomes more extensively cultivated they will no doubt be reduced in price.

— A MONTHLY MEETING OF THE SCOTTISH HORTICULTURAL ASSOCIATION was held on Tuesday evening the 6th inst. in St. Andrew's Hall, Edinburgh. A paper was read from an Australian gentleman on the culture of florist flowers; and Mr. Priest, Newbattle Abbey Gardens, read a paper on the colouring of Grapes, his opinion being that the more equable and uniform the temperature the better would the fruit be in colour and quality. The insufficient ventilation of hothouses came in for a share of the blame in the discussion which followed; while the nature of the soil, it was pointed out, had a very great effect indeed, some Grapes thriving on a given soil where others could not be induced to flourish.

— THE correspondent of a daily contemporary describing the Electrical Exhibition in Paris, thus refers to the INFLUENCE OF ELECTRICITY ON PLANTS—"Flowers appear to be in sympathy with Queen Electricity. The tall Palms and tropical Ferns look to peculiar advantage when she is holding her court at the Palais de l'Industrie at night. There is a greenhouse of black glass into which no solar ray penetrates. Electricity stimulates the vitality of plants there and brings them to bloom and bear flowers. They are in a thoroughly healthy condition, and do not appear as if they ever wanted to go to sleep at night. All the twenty-four hours they are exposed to the rays of strong electrical lamps. It would appear that to some extent the chemical action of this light will enable gardeners to dispense with manure. In another example the light is produced in elegant vases suspended from the ceiling at a height of about 8 feet above the floor, and out of which beautiful plants are growing, made doubly luxuriant by the powerful properties of the light. The light being thus concealed in the midst of the vase does not reach the eye directly, but is reflected to a white tightly stretched circular sheet in the ceiling, from which it diffuses a mild and yet powerful light through the whole room."

— AN excellent herbaceous plant flowering in August and September is *ACHILLEA RIGIDA*; the flower stems rise to about 5 feet in height, and its large flat flower heads at the top are from 3 to 6 inches in diameter. The flowers are golden yellow, and the plant thrives in ordinary garden soil.

— A CORRESPONDENT, "W. M. S.," will be obliged if any of our readers can give a good receipt for PRESERVING MELONS in an early issue of the Journal.

— WE are informed that the AUTUMN EXHIBITION held by the Royal Horticultural Society of Ireland last week proved very satisfactory, plants, cut flowers, fruit, and vegetables being well represented. In the plant classes some of the principal prize-takers were the Rev. F. Tymons, Mr. Smith of the Vice-Regal

Gardens, and Messrs. Westby, Wilson, Vaughan, and Watson. Cut flowers were contributed by Messrs. Dickson of Newtownards in fine condition, Messrs. Rodger, McClelland & Co., Newry, staging a fine group of new and rare plants. Grapes were especially good in the fruit classes.

— THE September issue of the *Gardener* gives the following particulars of the LARGE VINE AT SPEDDOCK, DUMFRIESSHIRE. "At Speddock, near Dumfries, there is a very remarkable specimen of the Black Hamburg Vine. It is distinguished for its size, but not more so than for the splendid Grapes it bears annually. As far as we are aware it has no equal in this country, if its size and the quality of its produce are considered. The Vine at Hampton Court, as well as those at Cumberland Lodge and Finchley, are all larger; but the produce of these is not so fine as the Speddock Vine. This Vine is about eighty years old, and until a few years ago it occupied a much smaller vinery than the one it has now nearly filled, and which is something over 60 feet long and 20 feet wide, with a lofty back wall, and consequently a long rafter. The Vine is planted at the extreme east end of the house, so that its growth is entirely to the west. Last year it bore 600 lbs. of Grapes of superb quality both as to size and finish. This year it has fully 700 lbs., every bunch from end to end and top to bottom being a model one; and while some are quite 3 lbs. weight, they will average at least 2 lbs. each. They are large in berry, conical in shape, and jet black. Mr. Smith, who manages all his Vines in four vineries with great care and skill, wings all the bunches, so that they are all remarkably uniform in shape. This grand Vine is in a most vigorous condition, and if the vinery were added to 60 feet to the east, it would soon fill it all; but the nature of the ground prevents extension in that direction. The border is liberally manured annually."

— THE following GARDENING APPOINTMENTS have been recently made—Mr. S. Burge, recently gardener to Col. Calvert, Ockley Court, Dorking, is now gardener to D. Davidson, Esq., Somerset Lodge, Wimbledon Common; Mr. J. Robinson, late gardener to Baron de Worms, Milton Park, Egham, succeeds Mr. Pierce as gardener to the Dowager Lady Howard de Walden, The Mote Park, Maidstone; Mr. James Jordan, late foreman at Oakfield, Wimbledon Park, has been appointed gardener to J. Moray Brown, Esq., Florian, Torquay; and Mr. J. Gadd, late of Thorndon Hall, has been appointed gardener to Sir T. Barrett Lennard, Bart., Belhus Park, Aveley.

ROYAL HORTICULTURAL SOCIETY.

SEPTEMBER 13TH.

ONE of the best meetings that has been held for some time was that of Tuesday last, when numerous members of both Committees attended, and the exhibits in each department were sufficiently numerous to keep them well employed for an hour or more. Dahlias were, however, the great feature of the Meeting, and better representative collections have rarely been seen. The Council-room and vestibule were fully occupied, the numerous bright and varied flowers affording a pleasing and attractive display that has not been exceeded at some exhibitions held this year.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. Mr. G. Hawkins, gardener to Col. Turbervill, Ewenny Priory, Bridgend, Wales, was awarded a cultural commendation for some dishes of fine fruits gathered from trees in pots. Beurré Hardy Pears were good, said to be from a tree with four dozen fruits. Coe's Golden Drop and Reine Claude de Bavay Plums were both finely ripened, the former from a tree with six dozen, the latter from one with nine dozen fruits, both in cold houses. Lord Palmerston Peaches were also large. Messrs. G. Bunyard & Son, Maidstone, were accorded a vote of thanks for the following fruits—Frogmore Prolific Damson, a small black variety, comparatively sweet. Worcester Pearmain Apples were very notable for their even shape, good size, and bright colour, and it was stated that they were gathered from trees two years old in the nursery rows. The same was stated of some Grenadier and Ecklinville Apples, both fine. A vote of thanks was also accorded to Messrs. J. Veitch & Sons, Chelsea, for fruits of three varieties of Raspberry Belle de Fontenay, October Red, and October Yellow. A similar recognition was accorded to Mr. Gilbert, The Gardens,

Burghley, for an example of his Netted Victory Melon, fairly well netted and of excellent flavour, the Committee expressing a high opinion of the variety, and desiring to see the fruit again. Some Cucumbers were also shown by Mr. Gilbert. Messrs. T. Rivers and Son, Sawbridgeworth, had a collection of Apples, Peaches, and Nectarines, and were awarded a vote of thanks. Mr. R. Dean, Ealing, had a collection of Apples, which was accorded a similar acknowledgment. Mr. Burnett, The Gardens, Deepdene, Dorking, sent some fine examples of the Red Astrachan Apple. Mr. Hughes, gardener to Colonel Cartwright, Eydon Hall, Byfield, sent several examples of Beet, but were not considered sufficiently distinct from those already in cultivation. Mr. T. Laxton, Bedford, sent pods of his new Runner Bean, very long and broad. Mr. W. H. Brown, Uppingham, exhibited some Red Shallots, and for comparison some Mammoth Russian Shallots, which were much larger than the former. Mr. George Ockenden, Cuckfield, staged fruits of a new Fig called Ockenden Seedling, of good size, and dark purplish in colour. The Committee expressed a desire to see it again. Mr. Wilson, gardener to the Duke of Norfolk, Arundel Castle, sent a large multiple crown of a Pine Apple, comprising some dozens of small ones closely packed in a globular mass. Messrs. Cheal & Son, Crawley, sent several Apples and Melons, but not of special merit.

Messrs. W. Paul & Son, Waltham Cross, were awarded a silver Banksian medal for a collection of Apples and Pears, comprising 120 dishes of the former and eighty of the latter, together with several examples of ornamental Crataeguses and Pyruses.

FLORAL COMMITTEE.—G. F. Wilson, Esq., F.R.S., in the chair.—Mr. Charles Turner, Slough, had a remarkably handsome collection of Dahlias, occupying considerable space in the vestibule. All the bedding, Pompones, and single forms were arranged in clusters in boxes of moss, and thus had not the formal appearance of the Show varieties on the flat trays. Of the Pompones varieties the best were Lady Blanche, white; Dora, very light yellow; Prince of Liliputians, deep crimson or maroon; Fireball, scarlet; North Light, scarlet and rose; Perfection, bright purple. Among the fancy varieties the following were noteworthy—Mrs. Sanders, very large, yellow tipped with white; Peacock, crimson, tipped white; Annie Pritchard, very large, white streaked with purple; and Grand Sultan, yellow streaked with crimson. The most striking Show varieties were John Laing, bright scarlet, good form; Canary, rich yellow; Pioneer, deep maroon, nearly black; Annie Neville, white; Prince Bismarck, rich purple; Emily Edward, bluish white, brown florets; Robert Burns, maroon, good. A medal was recommended for this collection.

Messrs. H. Cannell & Son also had an extensive collection of Dahlias, representing all the sections—single, Pompones, Show, and Fancy varieties. Of the single varieties Alba, a large pure white flower, Brightness, orange-scarlet, The Star, deep orange, and Paragon were the most noteworthy. In the Pompones White Aster, Barcelona, deep crimson, Voltaire, and Sensation, yellow, were the best. Of the very numerous Show and Fancy forms it is almost impossible to make a selection, as nearly all the best in commerce were admirably represented. A medal was also deservedly recommended for this collection. Mr. J. T. Riches, Tooting, sent a collection of pretty and choice hardy plants, among which were the early-flowering Chrysanthemums Scarlet Gem, dark red, Jardin des Plantes, yellow, Précocité, yellow, and Nanum, white. Several Pentstemons were notable, Robert White, with large bright red flower and a white throat, being one of the best. Among other plants were Solidago virgaurea, bright yellow; Arum pannonicum, with purplish Thistle-like heads; Campanula lactiflora cœrulea, Dracocephalum canescens, and Rudbeckia Newmanni. A vote of thanks was accorded to Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, for a large and beautiful collection of single Dahlias. The most noteworthy variety was White Queen, flower head large and of good form, the outer florets pure white, broad, and rounded. Among many others the following were especially good—lutea grandiflora, pale clear yellow, large and symmetrical; Yellow Queen, very neat and bright; gracilis perfecta, deep rich scarlet; Paragon, and a sport from it entirely deep maroon without the lighter bands; glabrata, the light and graceful form with mauve-coloured flowers; Beauty of Cambridge, deep red with a slight purple tint, very distinct and fine. Mr. Temple, gardener to J. Donaldson, Esq., Chiswick, sent about two dozen plants of a brightly coloured Amaranthus. The leaves were richly marked with yellow, crimson maroon, and green in about equal transverse bands. The young leaves were particularly fine. Mr. H. Eckford, The Gardens, Sandywell Park, Cheltenham, sent a group of seedling Coleuses, several bright and pretty, but not considered sufficiently distinct to merit the award of certificates. He also sent some seedling Pansies and Dahlias. Mr. John Fraser, Lea Bridge Road Nursery, Leyton, sent a handsome specimen of Ixora venusta, about 4 feet high, and bearing abundant trusses of bright orange-scarlet flowers. Some small plants of Ixora regina were also shown, and certificate was awarded for it. It is described below. Messrs. Jones & North, Lewisham, sent several seedling Fuchsias, but not marked by special excellence. Messrs. J. Carter & Co., High Holborn, exhibited two new Crotons, one named Bealii, with neat leaves, bright yellow in the centre and green margins. The other was named Dunnetti; the leaves were veined freely with yellow. Plants of Galtionia candicans were also shown.

A vote of thanks was accorded to Mr. B. S. Williams, Upper Holloway, for plants of Stephanotis multiflorus flowering very freely.

They were in 60-size pots, and were each bearing one or two trusses of flowers. A vote of thanks was accorded to Mr. R. Dean, Ealing, for a plant of the new dwarf French striped Marigold, compact in habit and very free. Some fine African Marigolds were also shown. Messrs. Wm. Paul & Son, Waltham Cross, sent six boxes of Roses in excellent condition for the season. Beauty of Waltham, La France, Souvenir de la Malmaison, Alfred Colomb, and A. K. Williams were particularly fine. Messrs. Watson & Son, Islington, were accorded a vote of thanks for a group of early-flowering Chrysanthemums. Souvenir d'un Ami, pure white, was one of the best. From the Society's garden a large and handsome group of plants was exhibited, comprising Gomphrenas, Celosias, Begonias, Bouvardias, and Torenias. The neat Capsicum Little Gem was especially noteworthy for the dwarfness of its habit and the number of small bright scarlet fruits it bore. The Scabious in pots were also very bright and flowering well. A handsome specimen of Begonia Martiana was shown with growths 3 or 4 feet high thickly studded with bright rosy flowers, and some dwarf Cockscombs were exhibited with fine compact bright crimson heads. The variety was one of Vilmorin's, and is named President Thiers. Four boxes of Dahlias were contributed, chiefly Pompones, representing a large number of varieties from English and continental growers.

Messrs. Heath & Son, Cheltenham, sent an Orchid said to be from Central India, with peculiar white flowers, the lip being deeply cut into narrow divisions. It was a terrestrial species somewhat in the style of a Disa, but the flowers were furnished with a spur. It was determined by Mr. Croucher to be Bonatea speciosa, a Cape Orchid. Mr. J. McDonald of Chichester exhibited fruits of his Golden Crab, said to be the result of a cross between Pyrus floribunda and the common yellow Crab. The fruits were of a very bright yellow colour. A vote of thanks was awarded.

First-class certificates were awarded for the following plants—

Sarracena Courtii (Veitch).—A very pretty and neat hybrid between *S. psittacina* and *S. purpurea*. The pitchers are deep red in colour and form close rosettes 4 to 5 inches across, in some instances there being a dozen pitchers. It is a curious and attractive form, evidently intermediate between the parents named above, partaking largely of the *S. psittacina* habit.

Adiantum Oweni.—This, which is said to be a hybrid between *A. amabile* and *A. cuneatum*, was shown by Mr. Owen of Yewdon, Henley-on-Thames. It has large fronds, and is graceful in habit; the general form of the pinnules and appearance of the plant justifying the recorded parentage.

Ixora regina (Fraser).—A variety which is chiefly remarkable for the dwarfness of its habit and its floriferousness. Some plants in 48 and 32-size pots were 12 to 18 inches in height, bearing from three to six close trusses of bright orange or salmon-tinted flowers.

Pelargonium Miller's Mrs. Miller (Laing).—A silver-edged tricolor variety of great beauty; the leaves being of neatly rounded form, the centre green with concentric bands of maroon, crimson, and white. It appears to colour remarkably well, and is of good dwarf habit, yet free in growth. We understand that the variety was raised by a gentleman at Ramsgate, who has had it hedged out, in which way it colours extremely well.

Pellionia Daveana (Bull).—A neat and pretty plant of trailing habit, with ovate leaves 1½ inch long, oblique at the base, light green or silvery in the centre, and with broad dark green margins.

Euonymus latifolius (Veitch and W. Paul).—Similar to the well-known *Euonymus europæus*, having fruits of a bright red colour produced in large numbers, and when fully ripe they open, exposing the bright yellow seeds, the effect of the contrast being most striking.

Pitcairnia Jacksoni (Royal Horticultural Society).—One of the Bromeliads, with narrow tapering dark green leaves half an inch in width; the flowers being bright scarlet, 3 inches long, in a raceme 9 or 10 inches long.

Capsicum Little Gem (Royal Horticultural Society).—This is one of Mr. B. S. Williams' novelties for the forthcoming season, and appears likely to be a general favourite for decorative purposes. The plants are dwarf and compact in habit, scarcely exceeding 9 inches in height, and in small 48-pots make pretty little specimens. The plants shown had abundance of small ovoid or globular fruits, bright scarlet in colour.

Dahlia Pioneer (Turner).—A Show variety, with blooms of good size and form, of an intense deep maroon colour, velvety, and nearly black. It is one of the darkest varieties we have seen, and in substance and form is well worthy of the firm that exhibited it.

Dahlia Miss Batchelor (Keynes).—Also a Show variety, the flowers being of moderate size but exquisite in shape and substance, finely rounded in outline, and with no approach to flatness in the centre. The colour is a brilliant scarlet.

Dahlia George Rawlings (Rawlings).—Another Show variety, globular in form, large, 5 inches in diameter; deep maroon, nearly black in the centre of the florets, but shading to a deep rich crimson at the margin. It is a handsome massive bloom.

MULE PINKS.—A gentleman sent me a letter through your office offering me cuttings of Mule Pinks. When I essayed to write him to accept his kind offer his note was not to be found, and I have forgotten the address of the writer. It was Cambridge

I know, but do not recollect either name or street. Can you help in any way?—R. P. BROTHERSTON.

MR. CHARLES LEE.

LAST week it was our melancholy duty to announce the death of this gentleman, whose portrait we now submit as that of a kind and genial man, an earnest and skilful horticulturist, and for the last four years the head of one of the oldest and most important nursery firms in this country. Mr. Charles Lee was, however, a

partner in the firm for fifty years previous to the retirement of his brother, Mr. John Lee, in 1877, so that his term of labour has been long, as it has admittedly been honourable; but that of his brother, who we are glad to say is alive and well, was still longer, for he had been engaged in the business for fifty-six years at the time of his retirement above mentioned.

The portrait of Mr. James Lee, the founder of the Hammersmith Nursery, where Mr. Charles Lee was born on February 8th, 1808, appears in vol. xxxii. of this Journal, page 65, January 25th, 1877. As is there stated he was born in Scotland in 1715, and was for

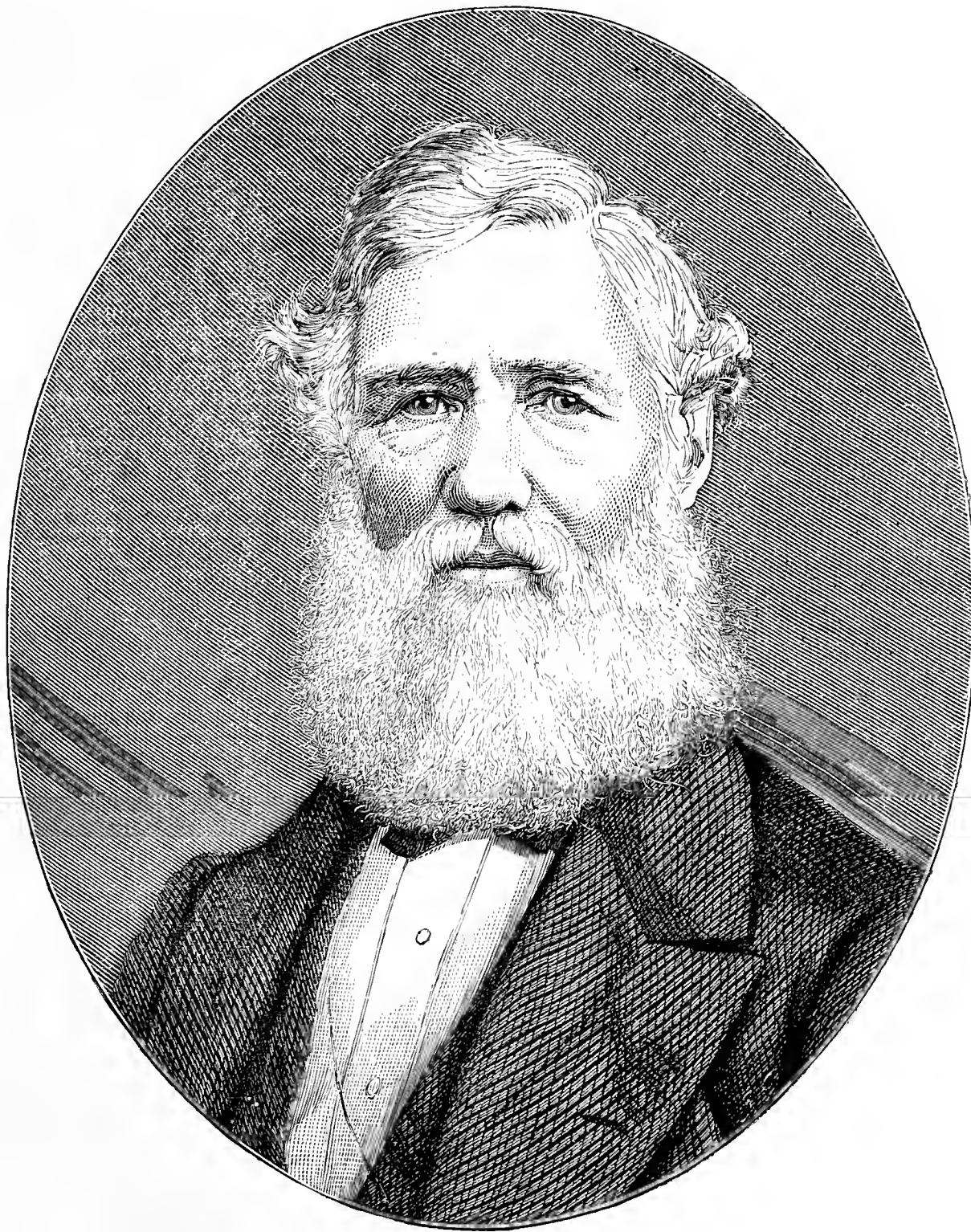


Fig. 42.—MR. CHARLES LEE.

some time under Philip Miller at the Chelsea Garden, and afterwards gardener to the Duke of Argyle at Whitton, Middlesex, who was a great importer of exotic trees, and for that reason only invidiously nicknamed by Walpole "a tree-monger." In conjunction with Kennedy, then gardener to Lord Bolton at Chiswick, Lee commenced the business of a nurseryman at the Vineyard, Hammersmith. He was patronised by a great many of the nobility and gentry, to whom he became known by his extensive knowledge of natural history; and his garden became particularly rich in plants from the extensive correspondence he kept up with Linnæus and other contemporary botanists. He died August 25th,

1795; and after an interval of a few years his son, Mr. James Lee, became the sole proprietor, and died in 1824. It was stated last week that Mr. Charles Lee was the representative of the fourth generation of Lees as conductors of the nursery; what was meant was that the firm was first Lee & Kennedy, next Mr. James Lee, then John & Charles Lee, and last, Charles Lee & Son—the son, Mr. Wm. Lee, at present occupying his lamented father's position.

The Hammersmith Nursery is not what it once was, although it is still the head-quarters of the business. The irresistible growth of London has effected a marvellous change, and the Addison Road railway station, Kensington, now occupies a portion of

the grounds of the Royal Vineyard establishment; but the loss of this ground is most fully compensated for by the important branch establishments at Isleworth, the propagating ground for choice Conifers under the care of Mr. Marslen; the arboretum, which almost adjoins, where Mr. Webb has charge of the fine collection of ornamental deciduous trees; at Feltham, where Mr. Dixon manages the evergreen and Conifer department; and at Ealing, where fruit trees, Roses, &c., are grown by Mr. Cannon.

It was over this great business that Mr. Charles Lee so ably presided until the time of his lamentably sudden death. He married a second time only a few years ago, and leaves a widow and two young children to mourn his loss and receive the sympathy of a host of friends.

THE HYACINTH.

HAVING on page 248, last vol., described the method of cultivation adopted in Holland I will now refer to the system pursued in England, first noting their culture in glasses. Under this system Hyacinths will be most likely to find favour with those who cultivate them in dwelling-houses, in consequence of their presenting a more ornamental appearance, taking up less space, and requiring less attention than when grown in pots. Having prepared the glasses by well washing them, nearly fill them with clear soft water, in which place one or two small pieces of charcoal; this keeps the water pure for a long time and is beneficial to the plant; place a bulb in each glass and fill up with water until it almost touches the base, then place the glass in a cool dark room or cellar in any airy situation, the object being to encourage root-action, which is more rapid than when exposed to the influence of light. In about a fortnight most of the bulbs will emit a number of roots, which, if the bulb is a good one, will be in an unbroken circle round the outside of the base. They should be allowed to remain until the roots have almost reached the bottom of the glasses and the flower spikes are about an inch in length, when they must be removed to the light, which should be subdued for the first change; afterwards bring them gradually into full daylight, when the spikes will change from a pale yellow to a green colour, increasing in depth. At this period they must be placed in a window as near the glass as possible, in order that they make a healthy growth.

When the bulbs have been started a week or two examine the water to see if it is pure and sweet, also take out the bulbs one by one and carefully remove off the brown shiny substance that will be found in the inner circle of the rootlets; this, if permitted to remain, is often the cause of the water becoming turbid. Care must be taken in doing this not to injure the young roots, which are very brittle. Change the water whenever it becomes in the least impure. As the roots descend they must be watched, as a whitish film occasionally forms upon the ends. This, if permitted to remain, will turn them black and destroy the tip; it is easily remedied by taking the bulb out of the glass, holding it in the left hand with the roots in a bowl of water, and carefully drawing them through the fingers of the right hand. I have found the film form much more frequently when charcoal is not placed in the water. For some time after the plants are brought to the light they should have the coolest and most airy situation that can be given them, but they must not be allowed to remain in any heated atmosphere until the flower spike is well advanced, when they may be hastened into bloom by being kept for a few days or a week in a room where there is a fire; care must, however, be taken to avoid their being unduly drawn and weakened. As soon as the flowers are well open they are best in a cool temperature, and by attending to this rule they may be kept fresh, and will last double the length of time that they would if permitted to remain in a heated room. As the flower spikes advance keep turning the glasses round, so that each part of the plant is equally exposed to light. Many will require supports, as the roots having nothing to hold to, the plant soon becomes top-heavy, and the flower spikes would frequently break if not properly supported.

In growing Hyacinths in pots I prefer a mellow loam enriched with well-decayed manure from an old hotbed rendered porous by an addition of sharp sand, say loam three parts and manure one part, well mixed together. If not easily procurable I do not hesitate to use the best compost I have at command, not being very particular in this respect, although I would always advise the use of good loam. As I can produce almost as good blooms in water as in soil, I am convinced that it is not so much the quality of the soil we employ as the previous treatment we have to depend upon for the desired result. The embryo bloom being properly developed in the bulbs before we obtain them, their after treatment differs materially from that which must be pursued in order to produce similar results in floriculture generally.

Having prepared the soil, take some clean 5-inch pots, the deeper the better; place not less than an inch of crocks or charcoal broken to the size of hazel nuts for drainage; then fill up with the coarse part of the soil to within about an inch of the rim, shake it down by knocking the pot upon the potting bench, sprinkle a little sand on the surface, place the bulb in the centre, press it gently down, and nearly cover it with the finer portions of the soil. A little care is necessary, for if the soil is too firm the bulb will rise out of its place as the roots are emitted, and if too loose the roots are liable to injury by the soil frequently becoming dry. When the whole batch is potted give a slight watering, which consolidates the soil and fixes the bulbs. Many growers do not advise watering at this stage, but I have always found it beneficial. Those who have the convenience should place the pots upon a bed of ashes, covering with not less than 6 inches depth of cocoa-nut refuse, fine charcoal, or ashes, sloped to throw off the rain. I prefer the former, which being light does not easily injure the spikes, but if used it should be pressed carefully down to make it rather firm. Those who have not the convenience for plunging the pots out of doors may place them in a packing box and cover with either of the above materials, or they may invert a small flower pot over each bulb in lieu of plunging, and place them in a cool dark cellar or outhouse, which answers the purpose equally well. No further care is needed for some time. In about two months the bulbs will produce plenty of roots, and the pots should be cleansed, and plants gradually brought to the light. The after treatment should also be the same as for those in glasses, except that liquid manure or soot dissolved in water may be given occasionally with advantage, as the flower spikes advance and begin to show colour. Attention must be given to the soil, which should never be allowed to become very dry, or the roots will shrink and be injured. In watering take care that sufficient is given to moisten the whole.

It must be borne in mind that Hyacinths cannot be cultivated so successfully in dwelling-houses as in greenhouses, no matter what care and attention you may bestow upon them; still I know no plant that can be so well grown in rooms, and that will adapt itself to circumstances as it does. Amateurs who possess a greenhouse may follow the treatment described but with better results.

Hyacinths grown in rooms frequently become very dusty, when the leaves must be sponged or given a gentle watering overhead with a can with the rose on; this is often very beneficial, as it softens the outer coating of the bulbs which the dry air renders hard, particularly round the collar of the spike. When the flower buds are about to open this process must be discontinued. In all cases avoid extreme temperatures and sudden changes, and bear in mind that, as a rule, the longer the period of growth the better the blooms.

The Hyacinth being a hardy plant will bear much frost without injury, though it is not desirable that it should become frozen; if, however, the water in the glasses be frozen during severe weather, with care in thawing little or no damage will result. I have had the water frozen solid and the glasses broken, in which case I took the plants with the ice firmly attached to the roots and placed them in water a few degrees above the freezing point, and allowed them to remain until sufficiently thawed to be able to remove them without breaking any of the roots, afterwards I placed them in the coldest water I could procure, and kept them very cool for a few days, when they grew and bloomed as usual and did not appear to have sustained any injury.

October is the best month for starting them into growth, but this may be deferred until December. I would not, however, recommend this being done later than the middle of November, as some of the earlier sorts will begin to push up the spikes, and when this has taken place they do not root so freely, consequently the blooms are not so good, and disappointment is occasionally experienced from this circumstance. For forcing and for glasses the single varieties are the best, although some of the double varieties succeed very well in glasses. For pot culture all varieties are suitable.

In conclusion I would remind all who may be desirous of cultivating the Hyacinth of the danger of attempting to follow implicitly any instructions they may receive without first considering their requirements and facilities, which vary so much that it is impossible for the most elaborate and exhaustive treatise to meet every case. A little sound judgment coupled with care and attention is all that is needed to become a successful cultivator.—JOHN HAIGH.—(*Read before the Sheffield Horticultural Society.*)

THE CYPRESS GROVES OF MEXICO.—A writer in an American journal describes these as follows:—"There are in the park probably not less than a thousand fine Cypress trees, whose

planting by the Toltecs (Nephites) antedates, perhaps, many centuries the rise of the Aztec empire. Some of these are nearly 50 feet in circumference, and from 100 to 125 feet in height, with huge limbs extending all round to a great distance, and being always clad with dry, bronzed, and fresh green leaves, mingling with drooping silvery Mosses, form the most enchanting bowers imaginable. The arrangement of these trees is in groves and double rows, sometimes crossing at right angles and affording splendidly shaded narrow avenues. An exceedingly fine spring of pure water gushes from the rocks of the south side of the hill. Three hundred and seventy years ago the waters of this spring were conveyed by the Aztecs to the city through an aqueduct of masonry constructed for the purpose. A portion is now forced with a steam pump for use in the gardens of the palace above, while the remainder still flows to the capital."

WHAT PLANTS USE.

(Continued from page 183.)

HAVING made a few remarks on the gases used by plants, we will now turn our attention to the mineral matters which they require, and which are found in the soil only.

When wood is thoroughly burnt there is always left behind an ash which will not burn. This ash is wholly mineral, and is as absolutely necessary to the plant's growth as are light and air. The elements, which may be present in small quantity only, are as necessary as are those which are present in much greater quantity. For instance, potash is present in the ash of Asparagus to the extent of only six per cent., while soda bulks as largely as thirty-four. Still we cannot say that soda is of more importance to the Asparagus plant than potash, for it will no more thrive without a due proportion of the latter than it will without the former. At the same time, a soil rather poor in potash, but with eight times more soda, will afford sufficient of both of these compounds. In the case of the Potato the case is quite different. Potash is present in the ash of Potatoes to the extent of fifty per cent., while soda seldom amounts to one per cent. Even the tyro will understand that a soil may be very suitable for Potatoes and yet fail to grow Asparagus, and *vice versa*. He will also understand that in ordinary soils Potatoes will make a heavy demand on the potash, and the Asparagus on the soda. He would also conclude that potash salt must be good for Potatoes, and soda for Asparagus, and would probably end by sprinkling kainit on his Potato plots and salt among his Asparagus. This is a common practice, and chemical science has shown how it is that salt is so appreciated by Asparagus. This much to enable the uninstructed reader to understand what follows.

Many elements enter into plants by the roots and are necessary to plants. These elements are chiefly in the form of compounds. We have already mentioned potash. Now potash is not an element, it is "hydroxide of the metallic element potassium." Again, soda is also a compound, and common salt a still more complicated one, in which the metallic element sodium and the gaseous one chlorine play important parts. We shall mention many others, but every one are compounds of elements. We will take each compound as they are generally placed in analytical tables. By the time we are done we hope our readers, who have hitherto given no attention to the subject, will understand the value of the tables which appear from time to time in the Journal and other publications.

Potash.—This is present in the ash of Potatoes to the extent of from forty-five to over sixty per cent., according to the soil and the variety. Many other plants contain large quantities, while others contain very little. Speaking generally, it is a good plan to insert plants which require only a small amount of any given mineral compound which may have been demanded in large quantities by the previous one grown on the same soil. Rotation of crops on this basis is proper and profitable; as generally carried out it means nothing and does not secure the end aimed at.

Potatoes may find enough of potash in the soil on which they are planted, or in the manure which is added, to bring one crop or more to perfection, and yet exhaust the soil of potash to an extent that would make Potato-growing unprofitable on that particular position until potash had again collected in the soil, either by its free application, by chemical manure, or in the ordinary way, being left there by other crops which do not require it, and therefore only take other matters from the freshly applied manure, leaving the potash. As a rule, plants which have a large percentage of potash in their ash have little soda, and *vice versa*. It seems that the soda takes the place in one plant that potash does in another. Both are alkalies: both have many properties in common, yet the one cannot replace the other in the economy of any given plant except in rare cases. We have therefore potash

plants and soda plants. Soda plants, as we have called them, affect the seaside. Plants which affect inland districts generally contain potash instead. This rule is, however, by no means absolute. Here is a list of commonly cultivated garden plants which contain potash in large proportion, and therefore demand it in the soil. Potatoes, 45 to 50 per cent.; Potato tops, 23; Apples (fruit), 35; Artichoke (Jerusalem), 44½; Broccoli (leaves), 22; (heart), 47; Beetroot, 39; Beet tops, 21; Beans (common), from 27 to 38; (kidney), 35; (runners), 49; Cherries, 51; Cabbage, 34; Cauliflower, 34; Celery, potash 22, and chloride of potassium, 33; Cucumber, 47; Endive, 37½; Gooseberries, 38½; Plums, 59; Grapes, 70; Vines (Grape), 34; Lettuce, 46; Leeks, 33; Onions, 39; Pears, 54; Pine Apple, 49; Peas, 36; Rhubarb stalk, 59½; Strawberries, 21; Turnips (Swede), 33.

The foregoing list of plants and fruits contain soda in their ash in much less quantity—sometimes only mere traces—and seldom more than 8 per cent. The exceptions are when the potash is present in less quantities than 40 per cent. The more soda the less potash, and *vice versa*. For instance, Apple ash contains 35 per cent. of potash and 26 of soda. Artichokes contain 44 of potash and only traces of soda. Kidney Beans 36 of potash, and 18 of soda; while Grapes, which have only 3 per cent. of soda in their ash, have as much as 70 of potash.

The following plants contain more soda than potash. Asparagus 34, and also 12 of common salt. Strawberries 27. (In Strawberries potash and soda are nearly equal: they contain 21 of the former.) Spinach 34, and 8 of common salt; Poppy 33; Corncockle, 22. Occasionally lime takes the place of both potash and soda, but it is generally in the parts of fruit or vegetables or grain-producing plants which are not used for food that lime is thus largely present. The parts which are used generally contain most potash. Thus Apples contain 35 per cent. of potash in their ash and only 4 of lime. Apple wood contains 63 per cent. of lime in its ash and only 19 of potash. Potatoes contain, off and on, about 50 per cent. of potash in their ash and only one of lime. The haulm contains 23 per cent. of potash in its ash, and as much as 43 of carbonate of lime.—(Liebig). Peas contain 36 of potash and only 10 of lime, while the haulm contains only 4 per cent. of potash and 47 of lime. We might enumerate many more cases, but this would only take up space. It is a rule, however, which is very uniform. Nourishing matter in vegetables, fruits, or grains has always a large proportion of potash and phosphoric acid associated or bound up with it. Mere woody fibre, or useless (for food) tops of any kind, have a greater amount of lime and less potash. This rule holds so good that one may say that the nature of mineral food required by any plant may be ascertained by the use for food or otherwise the plant is to animals.

Phosphoric Acid.—This is one of the principal compounds which plants use, and which is largely present in the ash of all plants cultivated for food. We append a list of plants and fruits with the per-centage of phosphoric acid found in their ash. Apple, 12; Asparagus, 18; Artichoke, 10; Broccoli, 24; Beans (common), 35; (French), 26; Cabbage, 12; Celery, 11; Gooseberries, 14; Grapes, 20; Onion, 20; Pears, 14; Peas, 31; Potatoes, 11 to 15; Rhubarb, 15 to 20; Radishes, 40; Strawberries, 8½; Spinach, 7½. What we have called soda plants contain a less amount of phosphoric acid than potash plants, and less animal nourishment.

In addition to the above plants require sulphur (which is generally present in the form of sulphuric acid in combination with some of the alkalies), magnesia, silica, and iron, which are present in very considerable quantities in most of our cultivated plants, but not to the extent of what have been called the more important compounds. Still they are necessary, and no soil can be fertile, or manure perfect without them.

There are others which we have not even named. They are still less important: some of them are not considered necessary at all, but even when found in plant ash to be only accidentally present. To enumerate them all in a very elementary article like this would be out of place.—SINGLE-HANDED.

(To be continued.)

CANWELL HALL,

THE SEAT OF A. B. FOSTER, ESQ.

THIS is situated near the Tamworth and Birmingham Road, midway between the former place and Sutton Coldfield. The Hall is approached by two carriage drives, one from the Lichfield and the other from the Tamworth Road, at each of which entrances commodious and elegant lodges have been recently built.

Entering by the Tamworth lodge we do not proceed far along the well-kept carriage drive, which is nearly a mile long, before the eye is arrested by the charm and variety of the scenery. Looking to the right the landscape is really beautiful. Hill and

dale, grand old trees, many bushes of Hawthorn dotted about (which must look fine in spring when in bloom), golden corn and grass of emerald green, combine to make up a picture not easily forgotten. In the distance a glimpse can be had of Drayton Manor, the seat of Sir Robert Peel, Bart., and which, horticulturally speaking, is one of the finest country seats in the kingdom, and is entirely the creation of the present popular baronet. Winding our way slowly onwards we pass some old giant Ash and other trees, many of them measuring from 17 to 20 feet round the stem and from 70 to 100 feet in height: they must be many centuries old. As we approach the Hall it is impossible to pass by the noble-looking old clump of trees planted in the valley below without a note of admiration and praise. In looking at them a doubt arises in the mind whether the gardening, like the architecture of antiquity, was not more noble and grand in its conception and execution than that of modern times. It may be considered presumptuous to criticise a work so old and so grand as the planting of these fine groups of trees; but the effect to my mind would have been better had the old gardener fringed the skirts of these groups with an occasional Scotch Fir, so as to brighten with its silvery glaucousness the too sombre and heavy colour of the deciduous trees. A short way before reaching the Hall a walk to the left leads to the kitchen garden. In passing I noticed some new plantations in which many of the recently planted trees had succumbed, as in many other places, to the unusually cold dry spring we have this year experienced; but the gardener, Mr. Morewood, who seems to possess the happy knack of making the best of difficulties, had planted the ground with Scotch Champion Potato, which no doubt, in a measure at least, will compensate for the loss of the trees. Following the same way, and passing by the garden offices, &c., we come to the gardener's house, which is roomy, comfortable, and light, and forms part of a fine new block of buildings consisting of stables, coach houses, &c., and which is close to the kitchen garden. Finding Mr. Morewood at home I was first shown into the kitchen garden, three acres of which are enclosed by high and substantial walls, with a central one dividing the garden into two.

Entering at the higher end of the garden the glass houses, which are numerous and in excellent condition, many of them being new, are arranged right and left conveniently together, no doubt with the object of economising labour and to facilitate work. Immediately before us in the centre of the garden was a walk leading to the lower end flanked on either side by a flower border, which was gay at the time of my visit with herbaceous and other interesting plants. The vegetable quarters were bearing heavy crops of all seasonable fruit and vegetables, this being the season that the demand is heaviest at Canwell. I was particularly pleased to find on a north border some Gooseberry and Currant trees loaded with fruit; they were carefully netted, and no doubt will afford a good supply well on into October. It is seldom also we see a finer wall of Peach and Nectarine trees than the central wall of this garden, furnished as it is with grand young trees in vigorous health, and showing careful and intelligent culture. Many of the trees are bearing good crops, but I doubt very much if the fruit will ripen without we have much warmer and better weather than we have been having lately. They certainly deserve a covering of glass. The kitchen garden proper is surrounded by another vegetable garden of about three acres, where the coarser vegetables, herbs, &c., are grown. It has not often been my privilege to visit a kitchen garden more replete than this in every article necessary for the supply of a large establishment, or where scrupulous order and cleanliness are better attended to.

The glass houses next claim attention. We first entered a Peach house, in which the fruit had been recently gathered. The trees are mostly young and in vigorous health. It is proposed to divide this house into two, so as to prolong the supply of fruit. In front of this are two new ranges span-roofed, each about 30 yards long (divided, one into two and the other into three sections), erected by Messrs. Richardson of Darlington. They are light roomy houses, in the construction of which every recent improvement has been introduced likely to facilitate successful culture. The first section is a stove, which contains a choice selection of healthy plants grown chiefly for house decoration and for cut flowers. For the latter purpose I was pleased to meet an old acquaintance which has of late years been elbowed out by younger but less worthy objects. I refer to *Hedychium acuminatum*, which was well bloomed, the Gardenia-like perfume from its snowy white flowers filling the house with its fragrance. The greenhouse was filled with plants chiefly useful for home decoration. The other three sections are used for growing Melons, Cucumbers, and Tomatoes. The Melons are good, the varieties being Victory of Bath and William Tillery. The latter in my opinion will become a standard variety; it is good all round. There are four vineries

mostly planted with young Vines, which are in a healthy condition and bearing good crops of moderate-sized bunches, which are more aimed at here than larger bunches. The varieties are Black Hamburg, Black Alicante, Gros Colman, Madresfield Court, Muscat of Alexandria, Duke of Buccleuch, and Golden Champion. Mr. Morewood speaks highly of the latter as a summer Grape, being seedless and very luscious. Certainly there are good clusters of it here, although affected as usual with the spot.

Leaving the kitchen garden and houses we return to the pleasure ground, and on the way pass a venerable Yew tree. A little further down we come upon one of the grandest avenues and groups of Spanish Chestnuts it has ever been my pleasure to behold. They are the pride and glory of Canwell. Many of them measure 20 feet in girth of stem, and tower up to the height of 100 feet and more. They are truly magnificent giants, and to a lover of trees are worth a long journey to see.

We proceeded along the carriage drive which leads from the Lichfield lodge, and came in sight of the north-west and entrance side of the mansion; it is a noble-looking building, and has been much improved by its present owner. In the front is a fine expanse of park rich in many trees of great magnitude and beauty, additions to which have been judiciously and liberally made by Mr. Foster since he bought the property about seven years ago.

Passing to the right we come upon the south side of the Hall, where the flower garden, lawn, tennis ground, &c., are situated. The former is arranged on a sunk terrace immediately adjoining the mansion. It is prettily designed, and this summer is very effectively planted, the colours being harmoniously and pleasingly blended. The centre bed encircling a massive vase may be particularly mentioned as one out of many samples of very artistic and effective carpet bedding. Other beds that pleased me were Pelargonium Miss Kingsbury and Calceolaria Bertha Baron planted promiscuously in masses, the rich dark velvety colour of the Calceolaria contrasting beautifully with the light bright colour of the Pelargonium. This is one of the very best silver variegated Pelargoniums for bedding purposes, being much brighter and more distinct than such varieties as Flower of Spring, Flower of Day, Bijou, &c.

Another pretty bed was Pelargonium Maréchal MacMahon and dwarf Ageratum planted in the same way. For harmony of colour and general effect this simple way of massing plants in my opinion is far more effective than the system of using many varieties in one bed, which, without great skill is exercised, often results, as far as general effect is concerned, in a complicated and confused maze of colour.

The general view from the terrace on this side of the house is both extensive and varied, the eye taking in at a glance twenty miles or more of interesting scenery, conspicuous to the left being the ancient and historical borough of Tamworth with its venerable and grand old church and castle.

Leaving the flower garden we return by a cool and shady walk through a forest of fine trees, highly pleased with our visit, and much impressed by the many additions and improvements substantially and thoroughly carried out within the past six or seven years by Mr. Foster, not only in the garden but in every department of the estate.—COUNTRYMAN.

CHAPTERS ON INSECTS FOR GARDENERS.—No. 28. NEW SERIES.

WE are not certain that the spiders of our islands are regarded either by gardeners or by the people generally as our most useful group of insects. Much might be said in favour of the bestowal of this title upon them when their outdoor proceedings are considered; and though within doors their webs are too disfiguring to be tolerated by most persons, they would, if left alone, impose a check upon the housefly and other annoying species. As it is we usually resort to artificial modes of keeping these under, and in our gardens spiders' webs are seldom left undisturbed in prominent positions, only those that have set their snares in nooks and corners escape, often only by accident. The æsthetic individual may indeed affect to be delighted at a tree or shrub the branches of which display the webs of spiders of various sizes and set at different angles, especially when these are glistening with dew-drops; but the horticulturist who prefers to see vegetation free from these traceries of silken cord, with their carcasses of slain insects, has something to urge on his side.

Yet it is far from advisable to make a point of clearing away every web that is seen, although at the decline of the season these seem to add an element of untidiness to gardens and shrubberies just when it is difficult to keep up their summer attractiveness. Fortunately there are many spiders that do not make webs but hunt down their prey, and these usually escape being meddled

with. One circumstance that ought to be in favour of spiders is this, they chiefly destroy insects in their perfect or imago state. In so doing they frequently stop the deposition of those eggs that would develop into a future brood of tormentors; and as the lives of some spiders last two or three years, though they may be more or less torpid during the depth of winter, each individual spider in these instances must kill many hundreds of insects during its period of existence.

In some parts of the continent the utility of spiders is recognised by gardeners, as is the case with the species called *Theridion benignum*, abundant in autumn almost throughout southern Europe. The cultivators of the Vine believe that its webs, which are often so numerous distributed over the branches as to leave scarcely any of the bunches of Grapes exposed, keep off a variety of insects large and small. This does not occur in Britain, although we have native species of that genus. The specific name was given to record the fact that this spider is of an amiable disposition, free from the cannibal tendencies notorious in others, where the smaller males are apt to fall victims to their larger female relatives.

It is not altogether unnecessary to state that there is no reason to apprehend any ill effects from the bite of a British spider, even of the larger species, supposing one succeeded in piercing the skin, which is hardly possible, at least I have never heard of an authenticated instance. In hotter countries it is different. If we reject the story of the Tarantula—as well we may, for the tarantula dance of Italy is evidently a kind of epidemic connected with a nervous derangement—there are still spiders that are certainly venomous. One of these which occurs in Spain has the inelegant appellation of *Latrodectus malmignatus*, and it might be imported by chance were it a house or garden species; but fields are its resort, where it seizes grasshoppers and locusts, killing them instantaneously, and though it is small in size its bite has proved fatal to human beings.

We have not said all that might be said in favour of spiders as a group when we have commended them as insect-killers. The silk they produce has been tried for manufacturing purposes, but the difficulty has been to obtain a sufficient quantity to work upon; it was also found almost impossible to clear the silk from extraneous substances so that it could be carded. It is not likely to rival the silk obtained from the Bombyx tribe, but the stouter threads are really serviceable in another way. Placed across the divisions of the micrometer they serve to measure minute spaces. To the web of the spider a medical or surgical value is attached in some places. There are still districts of England where these webs, formed in a sort of bolus, are swallowed as a cure for local fevers and ague, and it is a fact that applied to small wounds the material acts as a styptic. To those of us who are engaged in horticultural pursuits it is especially interesting to find that spiders have the repute of being "natural barometers," and their movements or their inactivity at various seasons of the year have been taken as indications of approaching changes in the weather. A degree of uncertainty, however, is connected with all prognostics drawn from the animal world. To give a familiar instance, birds hover low and are restless before rain, so it is said. Quite true, but they will manifest this uneasiness in the presence of a heavy cloud, which, from some cause does not produce rain, and passes over to another locality. I have noticed that in winter, when spiders are observed to be on the move during mild weather, it is probable that no immediate fall of the temperature is impending. In the summer or autumn a renewed activity on their part subsequent to rainfall may be deemed a hopeful sign, for they seldom attempt to repair their webs while the weather is unsettled.

It will be observed that spiders have been referred to as insects, and insects they will, I doubt not, be styled by the majority who are not naturalists. Even the students of their structure and habits are doubtful whether they are insects or crabs, hence they have by some been exalted into a separate class—the Arachnida. Their natural affinities certainly bring them near the insects, although there is an absence of distinct transformations, the growth of spiders proceeding by means of successive moults. Nor do we discover in the body the threefold division into head, thorax, and abdomen, the head being merged in the thorax. The legs are eight in number, whereas insects having attained to the imago stage can only display six, but then the first pair in spiders appear to be "palpi" or feelers somewhat modified. The integument or skin of a spider closely resembles that which is noticeable amongst all orders of insects, and its breathing is performed by organs in the abdomen, which are like the tracheae or air-tubes of insects. The spinnerets of the Arachnida are in many respects peculiar, and different from the organs by which some insects secrete silk.

Owing to the diminutive size of many spiders, the dexterity with which others conceal themselves, or the resemblance in colour they bear to the substances amongst which they are to be found, few persons are aware how abundant spiders are in every direction. On and under the bark of trees are numerous spiders at all seasons of the year upon their foliage, and upon the leaves, flowers, and fruit of almost every plant these insects spread their snares. Walls, palings, and old buildings are well-known resorts; stones, large or small, serve also as hiding places, and many spiders are constantly running over the surface of the earth, heaps of dead leaves, or rubbish.—J. R. S. C.

THE LOUGHBOROUGH BOILER.

THIS new boiler that has just been brought out by Messrs. Messenger & Co. of Loughborough, has been designed for heating the small structures of amateurs satisfactorily and economically. The advantages claimed for this boiler are that it is portable and does not need setting in brickwork, hence is a tenant's fixture; further, no stokehole is required, the boiler being placed on the ground at the end of the house inside, the face of it, or feeding portion, being flush with the outside, and consequently fed from

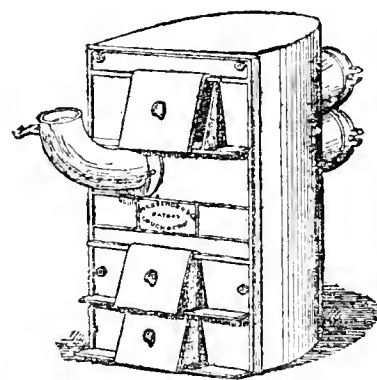


Fig. 43.—The Loughborough Boiler.

the open air. All that is necessary is to place the boiler in position and connect the pipes, flow and return, with india-rubber rings, and take them along the front of the house under the stage. The boiler, being inside the house, might be utilised for supplying bottom heat to a propagating case that could easily be fixed over it, such aids for striking cuttings being always of great service for amateurs. The boiler, we are informed, works admirably, and we direct attention to it as it promises to be of great service in heating small structures in villa gardens. The feed syphon is at the extreme end of the pipes, the outlet for smoke being in the front of the boiler (as may be seen in fig. 43), to which a pipe is attached that reaches above the roof or as high as is needed. Further particulars of this boiler will doubtless appear in advertisements, or may be had from the makers at the address above given.



HARDY FRUIT GARDEN.

EXCEPT attending carefully to ripening fruits, little requires to be done in this department at the present time. Trees against walls ought to be examined every morning, and all Peaches, Nectarines, Plums, and Figs removed as soon as ripe, not allowing them to become dead ripe, as it is generally considered that the fruit of the Peach and Nectarine with the finer Plums are improved in flavour by placing them for a few days on the shelves of a well-ventilated fruit room. The earlier Apples and Pears should be gathered as fast as they become ripe, handling the fruit carefully. Some judgment must be exercised, for if gathered too soon they will shrivel, and if allowed to remain too long upon the trees the fruit is deteriorated, not unfrequently being mealy and flavourless. Late Plums, Peaches, and Morello Cherries should be securely netted up. Remove or stop for the last time all unnecessary growths on espalier, bush, pyramid and cordon-trained trees, also trees trained to walls, so as to give the ripening fruit the benefit of the sun and air, also to accelerate the ripen-

ing of the young wood and spurs. Autumnal Raspberries will soon be ripening, and will require, where birds abound, the protection of nets. This crop is a valuable one, but is not so much cultivated as it deserves. All that is needed is an open situation with liberally enriched soil; and as soon as the crop is over the canes should all be cut off close to the surface, selecting in spring about half a dozen of the strongest canes to each stool, pulling up or cutting off all that are weak or superfluous. Recently made plantations of Strawberries should be kept free from runners and weeds; and those formed of plants which have been forced will probably have set their fruit for an autumnal crop; indeed we have now very fair fruit of Vicomtesse Hericart de Thury and Pioneer from plants that fruited in April. They will need protection from birds, with a mulch of some clean material.

STRAWBERRIES IN POTS.

Some of the plants that fruited last April or early May were reserved and partially shaken out and potted or surface-dressed. They were then placed on the north side of a wall until re-established, being afterwards transferred to an open situation and well supplied with water and liquid manure. They have now set a plentiful crop of fruit, and when this is swelling they can be placed in a pit or other light well-ventilated structure, with a temperature of 50° to 55°, and 10° to 15° rise from sun heat by day. The fruit will swell to a good size and be of fair flavour; indeed they are much appreciated where there is not much variety in fruits for dessert in October and November. Vicomtesse Hericart de Thury is one of the best for this purpose, also Sir Harry and Pioneer. Later batches for autumn fruiting may be continued out of doors until frost, when they may be placed in cold pits and transferred to the houses in October and November, so as to afford ripe fruit in November and December. Runners layered in the fruiting pots some time ago should be kept free from runners and weeds, and be well supplied with water and liquid manure to encourage vigorous growth, affording them plenty of room.

FRUIT HOUSES.

Vines.—The earliest-forced Vines must now be pruned, it not being necessary to wait until all the foliage is down, for if the wood be brown and hard and the leaves are turning yellow early rest will be induced by the pruning. Both the house and Vines should be given a thorough cleansing; the woodwork being brushed with soap and water, and the glass thoroughly cleansed both inside and out with water. If necessary the house should be painted. The loose bark can be removed from the canes, and then wash them with a brush and tepid water, and dress them with an insecticide. Remove the loose surface soil from the border, and supply good loam with about a fortieth part of bone dust and a similar proportion of wood ashes. Any Vines in an unsatisfactory condition should be partially lifted, carefully laying in the roots near the surface in fresh compost, but this process is best done whilst the Vines are in leaf. After pruning keep the house cool, closing only when there is likely to be frost. Vines in pots to be started in November should now be fully ripe, pruned, and at rest. Owing to the wounds on young Vines not healing quickly they should be dressed with styptic or patent knotting; keep them comparatively dry at the roots, but excessive dryness must be guarded against, as that would prove injurious through causing the fibres to perish. Later batches of Vines can, as soon as the wood is mature, be placed outdoors to ripen, having the canes secured to a wall or fence to prevent injury by wind. Young Vines that have made a strong growth take a long time to ripen properly, and should be assisted with a little fire heat accompanied with constant ventilation, continuing this until the wood is brown and hard. Late Grapes not yet ripe require extra heat, 70° at night and 80° to 85° by day, accompanied with free ventilation. If the roots of late Vines are in outside borders it will soon be necessary to protect them from heavy rains by means of shutters, tarpauling, or straw. The Grapes keep much better when the roots are not chilled by the autumn rains. When the Vines are planted inside it will only be necessary to guard against excessive moisture in the border, such as will cause mischief by its evaporation, which may be prevented by covering thinly with clean straw or a double thickness of mats; the covering also prevents the soil cracking.

Peaches and Nectarines.—Late kinds have the fruit swelling and

ripening fast, and the house should be freely ventilated day and night; if the weather be cold and wet a little heat by day will accelerate the ripening process and improve the quality, for late Peaches from being long in ripening through cold are very often poor in flavour though of good appearance, which causes them to be in ill repute, but when well ripened they, like some late Grapes, are very different. As the fruit is gathered in the latest houses cut out the wood that has borne fruit this season, not being extensions, and if necessary thin the wood well out so as to admit of the foliage and young wood having full exposure. In the case of trees having strong wood and green a little fire heat will be necessary to ripen it properly, with a somewhat drier condition at the roots than is advisable for trees in a less vigorous condition. Trees that ripened their fruit in July now have the wood matured, and should where practicable have the roof lights removed; this will tend to prevent the premature development of the buds to which trees long subjected to forcing are prone. Occasional syringings will be necessary to keep the foliage free from red spider, and if scale infests the trees syringe with an insecticide at a temperature of 120° to 140°. Brown aphides sometimes attacks the wood at this season and later, and must be promptly eradicated by fumigation, or syringing with an insecticide.

Pines.—Young plants at this season invariably present a luxuriant condition of growth. Great care will be necessary to prevent the growth becoming soft and attenuated. To consolidate the growth a drier condition of the atmosphere will need to be maintained, even if fire heat have to be resorted to in unfavourable weather. Syringing the plants should only be done occasionally early in the afternoon of sunny days. Afford a plentiful supply of weak guano water in a tepid state. Ventilate above 80° liberally, especially on sunny days and secure a minimum temperature of 65° at night. At the close of the present month the plants most likely for starting into fruit early in the ensuing year should be chosen from those started last March, bringing them together where they can be subjected to a comparative rest for about six weeks. All fruiting plants should be placed in a suitable structure for ripening, which will now depend greatly on artificial heat, encouraging them with a liberal supply of moisture ranging the night temperature from 70° to 75°, and through the day from 80° to 90°, closing rather early at 85°.

PLANT HOUSES.

Stove.—The dull weather lately prevailing has necessitated the removal of flowering stove plants from conservatories to their winter quarters; and as they have been kept somewhat dry at the roots, which with the lower temperature has checked growth, care must be taken in moving such back to the stove that they are not excited into growth. To prevent this withhold water, so as not to injure the foliage, and keep the atmosphere somewhat drier than in the season of active growth; indeed the temperature of this structure for the next two months should be kept at its lowest, 60° to 65° at night and 70° to 75° by day being ample. Stove plants as a rule do not require a long season of rest, but, if anything, should have the season of growth extended. The best season of rest is unquestionably the autumn months, and this will admit of the temperature being raised at the commencement of the new year; the plants will then start into growth and have the advantage of a long growing season. Resting them early induces a disposition to start early. Allamandas, Bougainvilleas, Ixoras, and other plants that were started latest into growth at the beginning of the season will naturally continue flowering the longest, and at no time are they more acceptable than through the autumn; hence they should be placed together at the warmest end of the stove. Those that were started early can be placed at the coolest end, keeping them as dry as they will bear without injury. Where there is a partition in the stove, so as to form two divisions, there will not be any necessity for an arrangement as above pointed out, as one compartment can be kept for such as require a high temperature and the other for those that do not need more than a cool stove or intermediate temperature. Shading, except for the tender-leaved foliage plants, can now be discontinued, and the glass both inside and out should be thoroughly cleaned. The woodwork also must be cleaned, and a thorough overhaul of the plants made

for insects, especially mealy bug and scale, fumigating repeatedly to exterminate thrips.

Caladiums, Gesneras, and Gloxinias, as their leaves begin to discolour and evince symptoms of the growth stopping, should have the water gradually withheld, allowing them to flag slightly before giving any, and then only enough to slightly freshen them, keeping them in a light position and in a stove temperature. Placing them in a lower temperature, so as to stop their growth and starve them to rest, prevents the proper ripening of the tubers, which will be so weakened as to result in an enfeebled growth the following season. When the leaves have died the plants should be stood in the pots, where they will receive a little moisture, and have as regards the Caladiums a temperature of about 60°, but the Gesneras and Gloxinias will winter safely in a temperature of 45° to 50°.

THE BEE-KEEPER.

EXAMINATION OF HIVES.

SEPTEMBER is, perhaps, the best time for a thorough examination of stock hives of all kinds. In this month their strength and condition can be well seen and understood, diseased hives condemned and removed from the apiary, and weak hives united. Having set aside fifty-six hives for sale and stock, I am now engaged in a careful and painstaking examination of them, our watchword being "excellence." Whatever is found objectionable is noted and condemned. If a single cell of foul brood is detected the hive is condemned and removed from the apiary. If hives be found weak in bees two are united, making one good hive; and if the combs of stocks are too old and black the bees are driven from them, and placed either in hives with young sweet combs, or into empty hives and fed into stocks. As this is important work nothing should be left to chance. Good hives are invaluable, and autumn is the time to make them strong. Several hives have been condemned owing to their combs being old. Last year, being an unfavourable one in Cheshire for honey, several hives were allowed to stay in the apiary a year beyond the usual time. This year they have been condemned, their honey taken, and in a few days their combs will be melted. We think that, generally speaking, combs that have been in use for two years should be condemned and melted. Early swarms generally fill their hives with combs, and their combs with brood, in the first season. These make capital stock hives. Next season their combs are so often filled with brood that they become tough and discoloured, and thousands of the cells in the central combs are cloyed up and made useless by pollen. The accumulation of a superabundance of pollen is common in old hives, and is a very great hindrance to prosperity. Every square inch of brood comb yields, or should yield, fifty young bees per hatch—i.e., every three weeks during the breeding season, but in pollen-bound combs the yield is not half so great. Combs made useless for breeding purposes by pollen stored up are nearly useless for storing honey. Besides, all this pollen in honeycombs is a great nuisance in the time of harvest, rendering it difficult to obtain pure honey. Often old combs are found so full of pollen that they appear like a piece of gingerbread. The retention of old combs in hives, and the practice of removing them from one hive to another, cannot be too strongly condemned. Among young combs bees thrive faster—that is to say, they breed faster, swarm earlier, gather more honey, which is more easily taken in a clean state from the combs than it can be taken from tough pollen-bound combs.

There is the question, too, of foul brood, which, though it is an incurable disease, need not frighten any bee-keeper. It has often been said that foul brood is an awful and destructive disease, and frequently have we repeated the same statement. If allowed to run its course ruin and destruction will result, for the disease itself admits of no cure. But in apiaries of young combs this disease is seldom known, and if it exists at all it cannot do much harm and never becomes a plague. The renewal of combs every second year at most in every hive, is the best possible way of preventing foul brood from injuring the apiary. In examining hives at this time the eye of the bee-master should run over the sides of the combs to see if any of their cells are covered with lids—that is to say, sealed up. If cells are seen covered with lids there is reason to fear that foul brood exists. By using a pointed stick or knitting needle the cells can be broken and their

contents exposed to view. Foul brood thus exposed is more like the gravy of meat or good beef tea than anything else. If a particle of foul brood be detected, both judge and executioner should do their work without delay—that is to say, the bees should be driven from the hives as soon as possible and put into other hives.

The work of uniting swarms is now a very simple affair. Formerly we used to take great precautions to prevent fighting and the destruction of life. Bees know each other and strangers by smell, and non-intrusionists naturally. In a healthy normal condition they fight and kill all strangers that enter their homes, often killing whole swarms as they have been cast into their hives. Nutmeg grated, minted syrup, and other strong-smelling substances have been used in uniting swarms in order to prevent bees smelling which are strangers, and thousands of unions have been effected without the loss of lives. This year we are doing the work differently and doing it well. By using brown paper or calico rags dipped in a weak solution of gunpowder or saltpetre and dried, the bees are subdued and mastered at the moment of union. The fumes or smoke from such paper or rag blown into the hive to receive the bees so disturbs and distresses the bees that they can think of nothing but their own safety. They run hither and thither to save themselves. While doing so we turn the hive upside down, and cast a swarm or half a swarm amongst the bees and comb, speedily replace it on its board, give them a sniff more of saltpetre, and shut all in the hive for a few minutes. All our unions this autumn have been successful, and all have been done as above described.

If combs are too old they can be removed and the hives have fresh combs built in their stead. If the combs are diseased the bees can be put into new or other hives and fed into stocks, and thus saved from ruin; and if hives are weak two can be united and thus made strong. If short of food, sugar syrup is easily administered. Whatever is needed to make hives strong for the winter should be done now. Whatever is worth doing should be done well.—A. PETTIGREW, *Bowdon, Cheshire.*

THE 'LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION SHOW.

THE Lincolnshire Bee-keepers' Association is one of twelve county societies formed for the promotion of bee-keeping. The Society is in a very flourishing condition, numbering some 260 members, and is affiliated to the British Bee-keepers' Association. It held its sixth annual Exhibition of bees, honey, hives, &c., together with very interesting bee manipulations, at Louth, on Thursday last, at The Cedars, the residence of Joseph Bennett, Esq., J.P. The exhibits were numerous, exceeding in number those of the British Bee-keepers' Association held recently at South Kensington, and were arranged in three commodious tents. Bees were not very largely exhibited. The class for Ligurians contained four entries, and the first prize was secured by Dr. Carline of Lincoln. In the class for British bees there were six entries, the first prize being awarded to Mr. H. Maples of Spalding. For any other than the preceding two varieties there were only two entries, Mr. T. Sells of Uffington securing the first position.

There were eleven classes for honey. The entries numbered altogether some 130, one class alone—that for the best glass of extracted or run honey of not less than 5 lbs. weight—mustering thirty-five entries. The first prize in this class was won by Mr. H. O. Smith of Louth. Quality was to be the chief point of excellence. Mr. W. Forman of Louth won the silver cup of the Association for the largest quantity of honey taken without destroying the bees. In these classes also the British Bee-keepers' Association offered a silver medal, a bronze medal, and a certificate, which were won by Dr. Russell of Lincoln, the Rev. W. V. Turner, Vicar of Bardney, and Mr. G. Bywater of Louth respectively. In hives and appliances there was an extensive and interesting exhibition, some very capital specimens of hives on many different principles, honey extractors, &c., being shown to the public. There was also a very interesting class for the best and largest collection of honey-and-pollen-producing plants to be shown either dried or otherwise. Here Mr. Godfrey of Grantham, the indefatigable and enthusiastic Honorary Secretary of the Society, carried off the laurels. Perhaps the most interesting part of the whole Exhibition was the bee-driving competition. This took place in a tent constructed for the purpose. The centre of this tent, where the hives of bees and the manipulators were, was open to the air, and the outside of the tent being closed in by the canvas sides and the inside protected by fine network from the intrusion of the bees, and it was very interesting to the public to see how thoroughly at home the various manipulators were with the bees.

On the evening preceding the Show a conversazione was held in the Town Hall, Louth, the Rector, Canon Wilde, presiding. Speeches were made or papers read on subjects interesting to apirians by the following gentlemen—J. G. Desborough, Esq., Stamford; T. W. Cowan, Esq., Horsham, Chairman of the British Bee-keepers' Association; W. Carr, Esq.; the Rev. J. L. Sisson of Edingthorpe, Norfolk; and the Rev. D. W. Pennell of Swansea.

We would suggest to the Committee that in future it would be very much better in an exhibition of this magnitude to issue a catalogue. The prize cards did not even mention the name of the successful competitors.

TRADE CATALOGUES RECEIVED.

Osborn & Sons, Fulham.—*Catalogue of Fruit Trees and Grape Vines.*

Geo. Cooling & Son, Bath.—*Catalogue of Bulbs.*

Samuel Yates, 16 and 18, Old Millgate, Manchester.—*Catalogue of Bulbs (Illustrated).*

Samuel May, Leeds.—*Catalogue of Bulbs.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

The Canary Creeper (A. J. S.).—The *Tropaeolum* ordinarily designated by the above popular name is *Tropaeolum peregrinum*, and there is not, as you suppose, a species correctly named *T. canariense*, which is a popular but erroneous title for the plant you have. If you have access to a library containing the "Botanical Magazine" you will find the plant figured on plate 1351.

Portland Cement for Hot-water Pipes (Eighteen-years Subscriber).—We know by experience that Portland cement makes sound and lasting joints. It is well to first press in a little packing firmly, then apply the cement carefully and smoothly; if a leakage occurs—and we have seen more than one—it is solely in consequence of a want of care on the part of the workman who used the cement. It is worth remembering, however, that it is almost impossible to remove pipes from the sockets that are jointed with cement, and we do not advise its use unless the heating arrangements are intended to be permanent.

Bouquets (H. S.).—There is no standard size for bouquets. The question is determined by taste and the custom of localities. In some districts it is the fashion to have hand bouquets much larger than in others, as may be seen by the competition at local shows. You cannot do better than note the sizes of the prize bouquets at the best shows in your district. Generally speaking, however, the choice of flowers and the free and tasteful method in which they are arranged are of far more importance than an inch more or less in the diameter of the bouquets.

Peach Tree for Wall (T. S.).—If Peach trees usually succeed in gardens in your district you might try the experiment of planting a Royal George, but whether it will ripen its wood and fruit well will depend entirely on the weather. We should not expect that a tree in such a position would have given satisfaction during the past four or five years. A Victoria Plum would be more certain to produce good crops of fruit, or a Williams' Bon Chrétien Pear. Strawberries are placed in houses from November to March, the time depending entirely on the character of the houses and the period when ripe fruit is required. On these points you afford us no data whatever for enabling us to answer your letter more explicitly.

Garden Management (E. D., Wicklow).—We are obliged by your letter, which shall have attention. The subjects to which you refer are so important that, although some of them have been prominently treated in our columns, they may be advantageously referred to again for the benefit of new readers and of those older subscribers who find the necessity of further advice that will tend to the better management of gardens.

Mildew on Rose (A. A. M.).—The leaf of the *Maréchal Niel* is attacked by mildew. Dissolve 2 or 3 ozs. of soft soap in a gallon of water, and with this syringe the plant, then dust the affected parts whilst wet with flowers of sulphur. The leaf you have sent is of an *Ahtilon*, possibly *A. vexillarium*. It is suitable for training up a rafter in the greenhouse, where its pendant flowers can be seen to advantage.

Golden Pyrethrum (L. S.).—The leaves were very much crushed, owing to having been sent in a letter instead of in a small box, and were not in condition to enable us to judge of the merits of the variety. So far as we can judge it appears to be a lacinated form of the old favourite, but the leaves are not so finely divided as the variety sent out by Messrs. Osborn & Sons under the name of *Pyrethrum aureum laciniatum*; it may still, however, be a useful variety.

Flavour of Fruits (Inquirer).—This is entirely a matter of taste, but the Black Jamaica is one of the richest flavoured Pine Apples in cultivation. The Muscat of Alexandria is not a red Grape but amber-coloured when in good condition, and its flavour is not surpassed by any other Muscat variety. We are unable to answer your third question as the names were not published. In regard to your last inquiry you had better apply to Mr. Casella, meteorological instrument maker, High Holborn, London, who will supply you with the information you require.

Heating Greenhouse (Amateur).—Small portable boilers and pipes have been frequently advertised in our columns that would be suitable for your house; but, as we have many times stated, it is impossible that we can recommend dealers in any garden requisite. No doubt small portable boilers will be advertised again now that the period of the year has arrived when inquiries are frequent for them. We have not tried the fertiliser you mention, but it is no doubt suitable for plants in pots, and must be used according to the instructions that accompany it. Your last question is very vague, and we can only say that the majority of greenhouse plants will be safe during the winter if the night temperature is kept between 40° and 45°, the day temperature by fire heat alone being about 5° higher.

Various (K. D.).—If the Arums are strong we think they would succeed if planted now, but should prefer planting in early summer towards the end of May or in June. All kinds of insects should be kept off Chrysanthemums by syringing the plants occasionally with weak tobacco water or any approved insecticide. *Tropaeolum speciosum* cannot be readily transplanted, and we should only attempt the removal of a portion of the plants, doing the work quickly yet carefully immediately the growths appear in spring. *Cerastium tomentosum* would form a suitable silvery carpet for your bed, small portions being dibbed in an inch or two apart now or in March. Any permanent covering would exhaust the soil more or less, but whether to the extent of injuring the Clematises no one can tell without knowing the condition of the plants. Consult with a good practical gardener on the spot. The *Imantophyllums* are too much shaded. If you stand the plants in a warm position out of doors in July, and let them remain so long as the weather is warm, they will probably bloom if they are strong and healthy and the pots well filled with roots. Your *Luculia* will probably not recover unless you can plant it out in a light position in the house. It cannot be successfully grown under Vines, and is seldom seen in good condition when attempts are made to cultivate it in pots by amateurs.

Mildew on Peach Trees (Roby).—Mildew is much more prevalent during some seasons than others, and its spread is much accelerated by dryness at the roots and a close moist atmosphere. You had better cleanse the house thoroughly after the leaves have fallen from the trees, and then paint the branches with a composition of sulphur and clay, a little of the latter being added to make the former adhere. The border if inside the house should also be examined, as it may be dry where the roots are, and a portion of the top soil removed and fresh compost added. Immediately mildew appears in the spring dust the affected parts with sulphur. Mr. Barney prevents mildew attacking Peach trees and Roses by syringing with a solution of soft soap made as follows: A lump of soft soap (about 2 lbs. or so) is placed in a saucepan and boiled for twenty minutes; this is placed in a large pot and mixed with five or six gallons of water. About half a pint of this solution is placed in an ordinary large watering can full of water, and used every time the trees and Roses are syringed. Not a vestige of mildew is seen on the foliage, and the water does not injure the petals of the Roses.

Figs Unsatisfactory (J. E.).—Your former letter did not reach us. The cause of the fruits dropping is either the result of the wood not having been matured, or imperfect fertilisation, or both. You can scarcely expect satisfactory crops if the trees are closely crowded against evergreens. Light and air are essential for maturing the wood, and unless this is accomplished the attention you give to the roots will be of little avail. Cannot you remove the evergreens or shorten their growth? Thin out the growths of the Figs, too, during the summer, retaining those that are short-jointed, and exposing the foliage to the full action of the light and air. You do not state whether the trees ever have ripened good crops; if they have not, possibly the position is not suitable nor the variety the best for outdoor culture. Overluxuriance caused by too rich soil, and overcrowding of the trees, are common causes of failure in Fig culture in the open air.

Mildew on Grapes (G. M.).—Only a portion of your letter can be read in consequence of its having been placed with the fruit that was much injured in transit, and the juice extracting the writing. So far as we can gather your management as regards temperature has been correct. Your Vines no doubt received a check, either by the inclemency of the weather in the spring, or by being too dry at the roots. Had you applied sulphur to the berries immediately the mildew appeared and repeated the application as needed they would not have been in the condition they are now. See what we have said in reply to another correspondent, "Roby," and read also an article on page 256 of our issue of September 15th, 1880; if you attend to the instructions referred to you may expect better results next year. If you do not possess the number we have mentioned it may be had from the publisher in return for 3½d. in postage stamps, with a request that he send you No. 12 of the third series.

The Cucumber Disease (W. Turner).—The form of disease that has ruined your crops is, we regret to say, incurable, at least it has baffled the efforts of the most skilled gardeners and best Cucumber growers who have attempted its extermination. You appear to have done all in your power to save your plants and crops, and we can only suggest that you cease attempting to grow Cucumbers in the house for two years, and endeavour to produce a supply in frames or hotbeds. We have known cases where it was impossible to grow Cucumbers in a disease-stricken house while the plants in frames flourished, but this is not always the case. The only practical mode of maintaining a supply of fruit where the disease exists is to keep on constantly raising young plants, and let each, if they will, bear two or three fruits before the disease develops into a virulent form. If you would like to read much that has been published on this form of disease you will find it in vol. xx. of the Journal; if you do not possess this volume the following numbers, which can be had from the publisher in return for 3½d. each, will answer your requirements—524, 526, 529, 530, 532, 534, and 536. No. 720 contains illustrations of the Cucumber root disease, which will afford you instruction.

Hedge for Kitchen Garden Boundary (Ignoramus).—Privet would grow the most quickly, and though forming a good screen is not strong enough to resist cattle. A mixture of Privet alternating with Quicks makes a somewhat stouter hedge, but the Privet outgrows and smothers the Quicks, and though a screen is thereby quickly formed it is not equal to one formed of Quicks alone, which we should have. The ground should be well trenched and manured so as to encourage a good growth of the Thorns. The trenching should be done with as little delay as possible, to admit of the plants being planted as soon as it is safe to move them, or when the leaves have fallen. Plant strong recently transplanted Quick, eight plants in a yard in a single row, and when the buds are swelling in spring cut the stems off about 4 inches from the ground. This will cause them to form a close bottom and make strong upright growth. Keep the ground clear of weeds through the summer, and in winter point over the soil on both sides so as to form a loose surface, and bury any weeds, but not so deep as to interfere with the roots. The fence may be trimmed in July with the shears, having the hedge about 9 inches in width at the base and slightly narrowing upwards. When about 36 inches in height it should be topped, and about 6 inches added to the height annually until the height required is attained. A double row of Quick makes a stouter fence, and a firmer and closer base is had by plashing—that is, letting the Thorns grow for a few years without topping, and then cutting and laying them down slantingly and keeping them in position with stakes. The fence must be protected from animals until it is established.

Disbudding Chrysanthemums (F. W.).—We are obliged by your letter, and have endeavoured to carry out your suggestion, but it was not practicable. The superfluous buds must be removed before they are developed so much as to show clear of the foliage; they, in fact, must often be searched for and carefully removed with a penknife when they are little larger than pins' heads. Mr. Moor-

man has explained in another column the difference between crown and terminal buds. Crown buds are never surrounded by other buds on the same stem, but by two or three young shoots; it is these growths that produce what are known as terminal buds, as no growth is made beyond them, but a cluster of other buds surround the one at the end of each shoot. A plant grown from a cutting and not stopped will, about the month of May, often cease to elongate for a few days, and will push forth two or three growths from near the apex. If the centre of these are examined a small bud will be found; this is what is called the "May bud," and is of no use, and the growths should be pushed on rapidly past it. In time, about July or early August, these, now primary growths, will each produce a crown bud, and two or three growths, not buds, around it. It is this bud, known as the "July bud," that usually produces the finest exhibition blooms; but it will not be of good form or substance unless the surrounding growths are removed immediately the crown bud can be discerned to be satisfactory. If this bud is not secured then only terminal buds can be relied on, and the side buds surrounding these must be picked out the moment the work can be safely done. More blooms are taken from terminal buds near London than around Liverpool, possibly because the crown buds of some of the varieties in the south might be too early if they were permitted to develop. This, however, is a question for the "fancy." We know that all of them do not admit the point, and we know also that it is only long experience and close observation that enables a grower to choose the buds of the different varieties that can be depended on to give the finest blooms. We hope the subject is now plainer to you than before.

Crested Kale (*G. O. S.*).—The leaves you send are curious, but they are not so crested as some that have been sent us of similar parentage. We have seen the peculiar curled or crested growth that is evenly spread over the surface of the leaf represented in various colours, consequently imparting a prettier appearance to it.

Naming Fruits (*To Correspondents*).—Several parcels of fruit have been received at this office during Dr. Hogg's absence from London. They will be preserved, and the names of such specimens as can be identified will be published in due time. It is necessary to state that the conditions attached to sending fruit for naming are that all specimens must be fair examples of their kind, and if the fruits differ in form on a given tree more than one specimen should be sent; that all dessert fruit must be ripe, or closely approaching ripeness, when it is sent; and culinary fruit be in its best state for use, and that no correspondent must send more than six varieties at once.

Names of Plants (*Hoperville*).—*Pyrus spectabilis* fl.-pl. (*W. D. H.*).—*Neottia spiralis* (*Spiranthes autumnalis*). (*Rosa*).—The Orchids, which were packed in wool, were both dried and crushed. The leaves resemble those of *Mandevilla suaveolens*. (*W. E. B.*).—4, *Achillea Ptarmica*. The other specimens were quite insufficient for identification. (*R. P. O.*).—You are quite right, the Orchid is a fine variety of *Oncidium flexuosum*. (*H. S.*).—1, Apparently a *Bilbergia*, but so small a fragment cannot be determined with certainty; 2, not sufficient; 3, *Begonia Sutherlandi*; 4, *Farugium grande*; 5, *Gymnogramma chrysophylla*; 6, *Begonia fuchsoides*. (*F. P.*).—Very much withered, but apparently *Pyrus spectabilis* fl.-pl. (*J. W.*).—*Autumnaria tomentosa*, a hardy alpine plant, useful for rockeries and carpet bedding. (*Hersham*).—*Crataegus latifolia*. (*Inquirer*).—*Oncidium lanceanum*.

Artificial Comb Foundation (*F. W. Pye*).—Mr. Raitt, Beecroft, Blairgowrie, made the foundations to which you refer. He makes two kinds—one for brood combs, and one for supers. The super foundations are made of whiter wax, and are lighter than the brood foundation.

Feed Bees not Building out Foundation (*Buzz*).—The difficulty you experience in getting your bees, even when fed, to build out foundation arises from two causes—First, the lateness of the season; and second, the presence of as much comb in the hive as the bees are able to fully cover. If you see any reason to induce them still to build out foundation you will succeed by removing three or four of their nine combs and putting foundation one sheet at a time in the centre. A few days since we removed all the combs from a stock and gave it six Woodbury sheets, which are all now quite finished combs, and yet a single frame of foundation added in the centre of their brood would probably have remained during the late cheerless weather almost untouched. It must not be forgotten that working out foundation is work, and that it consequently somewhat wears out the bees, reducing their change of living on to the spring; but of course if brood is being abundantly raised you will depend rather upon the yet unhatched bees than upon the little labourers you have determined to still keep at it.

COVENT GARDEN MARKET.—SEPTEMBER 14.

OUR market is now abundantly supplied with all kinds of produce in season, and prices are generally lower.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	1	0	0	0	Lemons.....	case 18	6	0	0	0
Apricots.....	doz.	0	0	0	0	Melons.....	each	1	0	2	0
Cherries.....	½ lb.	0	0	0	0	Nectarines....	dozen	1	0	6	0
Chestnuts.....	bushel	0	0	0	0	Oranges.....	case 100	0	0	0	0
Currants, Black	½ sieve	0	0	0	0	Peaches.....	dozen	1	0	9	0
„ Red.....	½ sieve	0	0	0	0	Pears, kitchen..	dozen	0	0	0	0
Figs.....	dozen	0	6	1	0	dessert.....	dozen	1	0	2	0
Filberts.....	½ lb.	0	0	0	9	Pine Apples....	case 10	2	0	3	0
Cobs.....	½ lb.	0	0	0	8	Strawberries...	per lb.	0	0	0	0
Gooseberries...	½ sieve	0	0	0	0	Walnuts.....	bushel	0	0	0	0
Grapes.....	½ lb.	0	6	4	0	ditto.....	case 100	0	0	0	0

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	4	0	Mushrooms.....	punnet	1	0	1	6
Asparagus.....	bundle	0	0	0	0	Mustard & Cress..	punnet	0	2	0	3
Beans, Kidney....	½ lb.	0	3	0	6	Onions.....	bushel	3	6	5	0
Beet, Red.....	dozen	1	0	2	0	Pickling.....	quart	0	0	0	5
Broccoli.....	bundle	0	9	1	6	Parsley.....	doz. bunches	3	0	4	0
Brussels Sprouts..	½ sieve	0	0	0	0	Parsnips.....	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Peas.....	quart	0	9	1	3
Carrots.....	bunch	0	4	0	6	Potatoes.....	bushel	3	9	4	0
Capsicums.....	case 100	1	6	2	0	Kidney.....	bushel	4	0	4	6
Cauliflowers.....	dozen	0	0	3	6	Radishes.....	doz. bunches	1	6	2	0
Celery.....	bundle	1	6	2	0	Rhubarb.....	bundle	0	4	0	6
Coleworts.....	doz. bunches	2	0	4	0	Salsify.....	bundle	1	0	0	0
Cucumbers.....	each	0	4	0	6	Scorzonera.....	bundle	1	6	0	0
Endive.....	dozen	1	0	2	0	Seakale.....	basket	0	0	0	0
Fennel.....	bunch	0	3	0	0	Shallots.....	case 10	0	3	0	0
Garlic.....	½ lb.	0	6	0	0	Spinach.....	bushel	3	0	0	0
Herbs.....	bunch	0	2	0	0	Turnips.....	bunch	0	4	0	0
Leeks.....	bunch	0	3	0	4	Vegetable Marrows	each	0	0	0	2



POULTRY AND PIGEON CHRONICLE.

A WET HAYTIME AND HARVEST.

(Continued from page 234.)

REFERRING to the practice of Messrs. Neilson and Knowles, it will be noticed that they get rid of all the harassing difficulties, as well as the extra expenses attending haymaking, especially in an adverse and rainy time. They are, however, entitled to claim the making of hay of superior quality and feeding value, not only in seasons when the rainfall impedes the ordinary process of making hay, but also when the season is more favourable, reducing the risk by earthing the hay at the early period of only two days' exposure, the juices and feeding quality of the grass being then retained and concentrated in the hay, and any excess of heat and fermentation being removed by the exhaust system. Although we entirely agree with these gentlemen as regards their plan of securing the hay under iron-roofed sheds or barns, yet we have to consider how the same advantages can be secured when ricks are built in the field in which the grass was produced. If we sell the rick of hay for delivery off the farm, or if we cut it out as required for feeding sheep in the adjoining field, it appears practically objectionable to carry hay a considerable distance to be built into a stack at the homestead. We therefore suggest that the same advantages may be obtained by Mr. Knowles' plan of saving the hay when ricks are built in the field as when made under the fixed iron roofing of a hay barn, except that thatching would be required in the former case and dispensed with in the latter.

Instead of the exhaust pipe being a fixture made of drain or sewage pipes there may be placed for use an iron gas pipe, or stack pipe used for carrying off water from buildings, of the requisite capacity, say a bore of 4 or 5 inches, which may when making the stand or bottom for the rick be, as usual, made of bavins or bean haulm. The pipe being laid to reach the centre of the rick will then be available if the chimney in the stack is made to meet the end of the pipe, on the ground being a little raised in the middle of the stand, and secured in position by a few elods of earth. At the same time secure the pipe in connection with the chimney, in order that it may be made to a great extent an air-tight pass for the heat of the rick when the exhaust fan is in operation.

We think this arrangement, which can be made with but little trouble, offers all the advantages of the system, and likewise the benefit to be derived from placing the ricks of hay in or near the fields where the crops were grown. There is a somewhat similar effect upon either green or damp hay between the system of securing it by Mr. Knowles' plan and that of Mr. Gibbs; but although the same object is attained—that of freeing the hay from sap and moisture, the latter is, however, done by drying it out by heat before carrying to stack. The former plan is to allow the stack to ferment and heat, and then exhaust the heat by mechanical means. We remained sceptical as to the alleged effect obtained from ventilating a solid haystack with a rather large-sized dressing machine fan until facts, relating to ten years of successful practice which cannot be overset, have induced us to give it prominent notice; and as the operation is attended with less cost, both in the machinery and the labour attending its operation as compared with Mr. Gibbs' system of drying, we can only conclude

that Mr. Knowles' plan is preferable as a farm practice. Our opinion, however, refers principally to the saving of hay, for we should prefer Mr. Gibbs' plan of drying before stacking for corn, simply because we cannot allow a corn stack to ferment and heat without deteriorating the grain more or less, whether of Wheat, Barley, Rye, or Oats for all useful purposes in consumption, as well as that of seeding the land for a future crop.

It is important to consider how often we have suffered seriously from the effects of wet seasons at haytime and harvest. In referring to the past we find it recorded that from the end of September, 1878, to the same date in 1879, which is the real agricultural year, we had no less than 41 inches of rain—about one-third over the average, and the excess was unfortunately received during the months of June, July, and August, in which we had an excess of rain in each month of more than double the average, 1 inch of rain meaning as nearly as possible 100 tons of water per acre. Thus it is we have to go back more than sixty years before we can find a parallel, or a year equally wet and disastrous. For although by the excess of wet injury was produced both in haying and harvest, yet by a very low temperature and deficient sunshine probably a still greater injury was inflicted upon the various agricultural products and operations. A wet harvest means a wet August, which we have experienced this year, and probably more injury or quite as much has been done by sprouting and staining the corn in the southern and midland counties than in 1879. We have no occupation at present so much concerned in the weather as agricultural pursuits. Formerly the working of mills depended very much upon water power and its supply in the summer months, before steam was introduced, particularly in the north of England. There were formerly a vast number of silk, cotton, and woollen manufactories carried on by water power, which depended on the rainfall, therefore any excess of rain at the haying and harvest periods now seriously affects agriculture more than any other pursuit. There are several important facts connected with the rainfall which it is important to point out. One reason why greater precautions are not taken to secure a better harvest both for hay and corn, especially in the southern and south-eastern counties, is the amount of uncertainty which prevails in regard to the weather; for if we could tell on the beginning of August what sort of weather would prevail during that month we could then tell what was the best system to pursue.

We have found that in the course of thirty-eight years, including 1879, we have had ten wet harvests—not all very wet, or sufficient to sprout the corn, but wet compared with harvests generally. This is one in about every four years, whereas we only find the corn sprouted or seriously deteriorated about once in eight years. These facts induce many farmers to become careless in regard to other years, relying on this calculation, although the excess of rainfall by no means occurs at any particular period, for they may appear as they have done lately within a few years, or be deferred to a period of ten years or more. Hence the peculiar and uncertain position of the home farmer, demanding of him not only great industry, but constant apprehension of coming events, to meet which no time should ever be lost to make hay while the sun shines, or stack the corn when in condition at the earliest opportunity. Delays in his calling are always dangerous; at the same time, to say when the hay or the corn is fit for stacking should not be a matter of guess, but be decided upon an amount of experience which young beginners cannot have, hence the necessity of attention to the writings and doings of those who have gone before them. As regards hay, we would rather have it under-made than over-dry; the same in cutting grass for hay, we would rather have it young and growing than approaching a seed stem. Again, with regard to corn, we would rather cut any kind of grain early so that the hardening process of the grain may be effected in the sheaf, or, what is better, in the stack, if we are satisfied that it will not heat in consequence of weeds, &c., contained in the bulk, for we have always obtained the best samples of grain when the ripening process was completed in the stack.

The next point deserving attention is how to proceed when corn has taken rain after being cut, and we can name two special instances, for in the years 1848 and 1852 we know that we had Wheat standing in stook which received a month of rainy weather, quite sufficient to prevent stacking, yet where farmers had patience a spell of fine weather came in both seasons, enabling them to rick the corn with the grain unsprouted and in sound heavy condition. We certainly advocate the erection on home farms of hay and corn barns, the roof and pillars of iron; not all exactly at the home-stead, for we object to large quantities of produce of hay and corn standing contiguously in a rickyard; but they may be placed on convenient sites to be found upon every farm. We consider this more advisable than ever, for we cannot afford to wait the convenience of a professional thatcher without great risk, nor can we

now educate the labourers into thatchers as we have done for a great many years, for after having taught them their work they will leave work without notice, at great inconvenience to the farmer. Building ricks, both of hay and corn, is nothing like so neatly and economically done as formerly; still, as it must in many instances be done, it is a matter in which the roofing of them is of the greatest consequence, such as making the roof with the sheaf butts sloping like thatch. Lastly, we recommend, under difficulties which may occur sometimes, the plan of putting a portion of the crops into small temporary stacks in the field, both of hay and corn, as in Scotland, Wales, and the northern counties.

WORK ON THE HOME FARM.

Horse Labour.—When not engaged in harvest work horses should now be employed in seeding and working the land for Trifolium and Vetches. Many fields of young Clover will be found thin of plants in consequence of the dry summer; these may be resown with Trifolium and only harrowed in with two or three of the iron harrow tines and rolled down, because the few remaining plants of Clover and grass will be saved and grow together as a mixed crop for either hay or feeding. The autumn cultivation of stubbles should now be continued daily with steam power, and by using the cultivator about 8 inches in depth, or as deep as the previous ploughing was done, both longways and crossways, it will bring on the surface where couch grass is found a large portion of it in lumps and clods of various sizes, and thus enable the horses to follow up the work by using Howard's self-lifting drag and the two-horse roller by turns—about two draggings between each rolling. This work may be continued until all the couch is combed out and disposed of either by burning in the field or carting away to a heap to become decayed and mellow. We prefer the latter plan, for it can be done during all kinds of weather except excessive rains, and also save a portion of the work necessary to reduce the couch into a condition for burning. At intervals some horses may be employed in drawing dung from the homestead on to the Clover leas ready to be ploughed in for Wheat; and if it is properly spread the land may be ploughed and pressed by steam power, as the rains of August have reduced the land to a moist and favourable condition for ploughing. This may be deferred until the autumn tillage is nearly completed, for it may be done in rainy weather, whereas autumn tillage can only be done and should be continued as long as the weather is dry and the land free to work.

The home farmer will now require to look for seed Wheat, and decide upon the sorts best suited to his soil as dictated by his own experience. If he has but little experience to rely upon he will have noticed, or should have done so, those varieties which have succeeded best in the vicinity of the home farm, for there is always something to be learnt by an inquiring mind from looking over the hedge and observing what is being done by his neighbours. Upon light hill lands we find that those sorts of Wheat answer well which throw a good bulk of straw, such as the Champion White from Berkshire, Morton's Red Straw White from Gloucestershire, and the Golden Drop Red Wheat grown in many districts. Upon good loamy or mixed soils in high condition and likely to grow a bulky crop of straw in a favourable season, we recommend the Club-headed Rough Chaff from Essex, as it not only grows very short in the straw but also very thick on the ground, and is seldom laid by storms to injure the yield. At the same time the grain is of the finest quality for the miller. On cold strong lands we find Nursery, a red Wheat with white straw and chaff as grown in Sussex and Hampshire, a hardy sort, which will retain plant better under difficulties than any variety with which we are acquainted. It is also well adapted for hill lands where much exposed, and it also produces the finest quality of all the varieties of Red Wheat. We have called attention to the selection of sorts of Wheat, anticipating the seed time. It is, however, now full time to be sowing winter Oats, winter Barley, and Rye, and we prefer the Giant or St. John's Day Rye to the ordinary sort, especially in loamy and good soil; but on hill lands under exposure to bleak winds the ordinary kind is more reliable, it being harder than the first-named sort.

Hand Labour.—There is still some Turnip-hoeing to be done, and the sooner it is completed the better. If, however, the plants are not likely to thrive well they may only be dragged, so that numbers may tell instead of large roots, especially when required to remain during the winter for spring feeding to be followed by a crop of Mangold, or when required to be ploughed in for manure. We find when passed through an old cutter, and ploughed in and spread evenly, and the land pressed, it is a good preparation for Lent corn, especially upon mixed soils which will not bear the sheep in a wet season. Hedge-trimming should now be finished. Thatching buildings may now be done with advantage while the straw is new and tough.

Live Stock.—Sheep may now be purchased, especially the lambs to be wintered and sold as mutton in the spring. The down ewes either from Wilts, Hants, Dorset, or Sussex intended for producing the early lambs at Easter may now have the rams removed from the flock, so that no lambs may fall later than the middle of February. We prefer to place all those ewes not in lamb upon root-feeding, cake, &c., to come out as early mutton instead of bringing a late lamb, that being against the successful feeding of ewes and lambs and selling them fat together. The long-woolled flocks will have the rams running with them for a month or six weeks longer yet, for in the grass

districts the lambs are not required to fall before the spring grass is ready for feeding. This observation applies chiefly to the midland, western, and northern counties. In south-western counties, where the horned Dorset and Somerset breeds are kept, these ewes are now for the most part forward in lamb, and will commence lambing in October—that is to say, those which are off-going stock and sold to the graziers in the home and southern counties for supplying the London and other markets with early lambs, commencing the sale of them about Christmas, and through January, February, and March. The breeding flocks, however, of these horned sheep are not often required to lamb much before December, and are mated with the rams accordingly. It is now a good time to look out for half-fat steers, just beneath the butcher's quality, for putting in the boxes for winter feeding; for these may often be made to come out during January and February, and can always be kept at a better profit than by taking up poor animals. All the stock of the farm may now be assisted with roots—working horses receiving Carrots, bullocks hybrid Turnips, young stock common Turnips, sheep early Turnips or Mangolds, for it is a plan now adopted to give wether sheep cut Mangolds in the field where they grew cut and mixed with bean or barley meal, or else decorticated cotton, or a mixture of all. The Mangold roots, however, we pull and stack between hurdles for ten days or a fortnight before being used. Dairy cows should now have Cabbages in the racks at milking time cut and mixed with meal or bran.

CORN OR CATTLE.

[Read at the British Association, York, September 1st, 1881, by William E. A. Axon, M.R.S.L., F.S.S.]

It is abundantly shown by statistics that the people of Great Britain are very largely dependant for their daily bread upon supplies from foreign sources, and that the proportion of imported over home-grown foods is steadily increasing. So marked, indeed, has this tendency become in late years that many appear to think our islands really incapable of feeding their inhabitants. Thus, an American publicist has roundly asserted that "if every acre of land in the British Isles were cultivated to its utmost capacity, the inhabitants could not raise food to supply the common necessities of life." It may not be without interest to test such statements as these, and it will easily be seen that they are very wide of the mark, and that under suitable conditions Britain is still able not only to maintain her present population but to find food for an enormous increase.

The agricultural returns show that the total acreage of the United Kingdom, including the Channel Islands and the Isle of Man, is 77,828,948, of which 47,586,700 are returned as under "crops, bare fallow, and grass." The corn crops cover 10,672,086 acres, the green crops 4,746,293. Clover and grass under rotation amount to 6,389,225 acres, and the permanent pasture, exclusive of heath or mountain land, is not less than 24,717,092 acres. Orchards have 180,000, and market gardens 44,000 acres. 2,409,000 acres are devoted to woods and plantations. In the ten years between 1870 and 1880 nearly 591,000 acres have ceased to be used for Wheat-growing. In the same period there has been an increase of nearly 2½ millions in permanent pasture.

The following table shows the land extent of crops, and gives an estimate of their average produce per annum. The calculation as to the amount raised from each acre is based upon the figures given by Mr. Robert Scott Burn (*Outlines of Modern Farming*. London, 1869. Vol. I. p. 22).

Estimate of the production of vegetable foods in the United Kingdom, including the Isle of Man and the Channel Islands, in 1880:—

	Acre.	Produce per acre.	Total produce.
WHEAT	3,065,895	{ 1680 lbs.....	5,150,703,600 lbs. grain.
		{ 2576 lbs.....	7,897,745,520 lbs. straw.
BARLEY	2,695,000	{ 1089 lbs.....	2,934,855,000 lbs. grain.
		{ 2016 lbs.....	5,433,120,000 lbs. straw.
OATS.....	4,191,716	{ 1360 lbs.....	5,700,733,760 lbs. grain.
		{ 2240 lbs.....	9,389,443,840 lbs. straw.
BEANS AND PEAS—			
Beans	436,361		
Peas	235,177		
	671,638	{ 1550 lbs.....	1,040,883,900 lbs. grain.
		{ 2240 lbs.....	1,504,245,120 lbs. straw.

The amount of land in the United Kingdom devoted to permanent pasture is 24,717,092 acres, calculated to produce at the rate of 50 lbs. of flesh meat per acre, 1,235,854,600 lbs., which at Mr. Greg's estimate of consumption of 3 lbs. per day, shows a sustaining power for 1,128,634 persons per annum.

The corn crops cover 10,672,086 acres, and the average yield of grain would be 17,929,104,480 lbs., which at 2 lbs. per head per day would feed 24,560,417 persons. Hence, without reckoning at all on the green crops, we have a sustaining power for 25½ millions of persons.

There have been various estimates as to the extent of English food production. Mr. Caird supplied figures from which, in 1877, Mr. S. Bourne calculated the average corn growth at 54,000,000 cwts.; but it is a gradually decreasing quantity. Mr. Bourne further reckons the growth of English flesh meat at 25½ million cwts., a much higher estimate than would follow from the basis adopted by Mr. Greg. It may be well then to say here, that Mr. Bourne counts the home produce of Wheat at 54 million cwts., the foreign supply at 53 million cwts., home-grown flesh meat at 26 million cwts., foreign supply at 5½ million cwts., home-made cheese and butter at three million cwts.,

foreign supply at three million cwts., home-grown Potatoes at nine million cwts., foreign supply at half a million. From a further calculation he came to the conclusion that in 1877, of the 33 million persons of the United Kingdom, 18 millions might be sustained on food grown at home, and 15 on that received from abroad. Whatever estimate be adopted, it would seem that the American criticism already quoted had some justification.

But let us suppose that the present process by which corn-growing districts have gradually been converted into grazing lands to continue until the entire available surface is devoted to cattle-raising.

The total of arable and pasture acreage of the United Kingdom in 1880 was 47,586,700, which, at a production of 50 lbs. weight of butchers' meat per annum, would give a nett result of 2,379,335,000 lbs., or an amount sufficient, at 3 lbs. per day, to feed 2,172,908 persons. If mankind were exclusively carnivorous, a much larger quantity would be required. The Canadian boatmen and the Esquimaux, when deprived of other food, consume from 6 lbs. to 8 lbs. daily.

If, however, instead of being devoted to cattle-raising, we suppose the same acreage to be under corn crops, and to produce on an average 1420 lbs. to the acre, we have an annual return of 67,673,114,000 lbs., or an amount sufficient, at 2 lbs. per day, to feed 92,702,896 persons. After leaving an ample margin for any diversity of opinion as to the bases of such calculations, it is clear that there is sufficient material in our own land for the food of its people. The real remedy for over-population is food reform. This assertion is corroborated by a careful estimate of Dr. C. D. Hunter, who argues that forty-four men could be supported on 100 acres devoted to sheep-raising, 53 on a dairy farm, 250 on Wheat, and 683 on Potatoes.

The British farmer, in face of the competition of cheap foreign-grown corn, has turned his attention more and more to cattle-raising, but there are not wanting signs that in the future he will encounter an equally keen rivalry in the production of flesh meat.

At the present moment we are spending enormous sums on needless luxuries. The self-imposed taxation in intoxicants and narcotics, including their direct and indirect consequences, would pay off the national debt in three or four years. The sewage, which should be returned to the land as a fertilising agent, is thrown away at an estimated waste of £30,000,000 per year. A similar evil tendency has been shown in the matter of food, in which the poor and dear has been selected, to the neglect of the cheaper and better. The ignorant have taken cost as a measure of value, and, aping the luxurious habits of their wealthier neighbours, the poor are spending upon beef and bacon the money which would be much better employed in the purchase of the kindly fruits of the earth. The diffusion of knowledge on the relative values of various kinds of food may be expected to correct some of the evils arising from the present vulgar delusions as to the necessity of a flesh diet, or its superiority over one derived from fruits or cereals.

The testimony of history is clear, that population and civilisation increase only when the nomadic hunters settle down as cultivators of the soil. The welfare of the nation is indissolubly connected with the economy of its food supply. The productiveness of the land might be improved by the removal of legislative hindrances to its free culture, and by returning to it the excreta of our teeming populations. The encouragement of fruit-growing is as legitimate an object of national concern as the development of fisheries. If such steps be taken we may hope to see England no longer dependant upon foreign nations for food supply, but able, by her green orchards and yellow corn fields, to find an ample and healthy support for her children and her children's children.

POULTRY AND PIGEONS

A QUARTER OF A CENTURY AGO.

It is interesting to compare the poultry fancy of to-day with that of some years ago. We are perhaps inclined to think it has meanwhile made more progress than it really has. Through the kindness of a fancier of very long standing—still a fancier we are glad to say, though no longer an exhibitor of Dorkings—we have been able to peruse a number of the "Poultry Chronicle" of 1854. The publication must now be very scarce indeed, so we are tempted to cull some notes and extracts from it. To begin with, in this number of December 6th, no less than nine large poultry shows are advertised as to be held in the month of December—viz, those of the Dublin Amateur Society; South Durham and North Riding of Yorkshire at Darlington; Nelson, Lanes.; Bath and West of England at Bath; the sixth Birmingham Show, Nottinghamshire Association at Southwell, Kendal, Essex Association at Colechester, and Manchester.

From an article on the then forthcoming Birmingham Show we gather the curious fact, that whereas hitherto an exhibitor had been allowed to show six pens, only four would that year be received from one exhibitor.

Some prize lists differ but little from those of the present day;

the classification is a little better, and separate classes for adults and chickens seem to have been almost universal.

In an article on "Poultry Judges and their Duties," the pros and cons are well weighed concerning the advisability of having many or few judges. The question, however, was a far different one to that of the present day, as it was taken for granted that the many judges would judge together as a board. Fortunately no one wishes now to revive the latter system; the experience of the Paris Exhibition alone would condemn it.

A letter headed "A Word to the Unwise" contains much advice which from experiment we are certain is most valuable. The writer says, "Many there are that still go on complaining that their poultry, and especially their chickens, keep dying off from catarrh or cold complaints. Let me, therefore, give one more very modern instance of the rapidly beneficial effect of artificial warmth in both arresting and curing bronchial and roup affections in several chickens, Bantams and Polish. On referring to the late edition of Mowbray it will be seen that not only a warm but an artificially warmed apartment is strongly recommended. Observing, therefore, ten days ago that four Bantams and three Polish chickens after exposure to wet without and accidental wet within their domicile, were affected, some with catarrh, others with the more advanced roup discharge from the nostrils, and others with the gapy rattling or bronchial irritation in the throat or chest, I forthwith removed them into a greenhouse warmed by flues. I was surprised to see that all my patients at once sought out the warmest—yes, I might say the hottest flues, and there nestled. So warm were these flues which they selected, that I question whether I could have retained my own hand upon them and called it a comfortable warmth. The result was that some of them in three or four, and all within ten days, were perfectly recovered, showing clearly the efficacy of the sound practical advice given in the late edition of Mowbray, that an artificially warmed apartment is most essential in the treatment of such complaints." A letter on "fraudulent practices" proves that even in those early days of the fancy many abuses had crept into exhibitions which of late years have caused so much bitter disappointment to honest fanciers. Borrowing, painting, falsification of ages are here alluded to as by no means unknown.

An extract from an American journal speaks of Dorkings imported from London as being "beautifully speckled, chocolate and white." These were subsequently crossed with Game to obtain more vigour of constitution. In the same article the Dominique is thus alluded to—"The Dominica hen, well selected and completely bred, is a fine useful bird. They are of no particular breed, only distinguished as Dominicas by their colour, which usually indicates hardness and fecundity. We have seldom known bad hens of this variety."

A report of the Reading Show is interesting. The entries of Dorkings seem to have been very numerous. In one class sixty pens competed for four prizes. There were no less than twenty trios of White Dorkings in two classes. We recognise the names of one or two fanciers of the present day as successful exhibitors. Among them Mr. Smith of Henley-in-Arden showed Coloured Dorkings, Mr. Clift of Dorking White Dorkings, Miss Julia Milward Turkeys.

In a report of the Derby Show we see that Dr. Hitchman, still a fancier and breeder of Dorkings, took first prize for Coloured Dorkings, and that his pen sold for fifteen guineas.

The advertisement columns of the "Poultry Chronicle" show that high prices were then asked for well-bred birds, and as much as two guineas a dozen for their eggs.—C.

SQUIRREL-TAILED FOWLS.

In farmyard fowls this is no blemish, but in show birds it is a great fault—so great, indeed, that no matter how good a fowl may be in all other points, if it has a squirrel tail it will never win in good company, and fowls of the kind should be avoided for breeding. Probably some may not know what a squirrel-tailed fowl is, but if they were breeding and showing such they would soon find out. A successful exhibitor of Grapes at the Manchester Show told me there, that he had the finest Scotch-Grey cock in the country, and being interested in the breed I thought I might be able to secure the bird, but further my informant told me that his tail was a most ornamental one, as it "came over his back and touched his head." After this I said no more on the matter, as that was a full indication of a squirrel-tailed fowl. When the tail bends sharply over the back and touches, or almost touches the head like that of a squirrel, it is considered a great fault, and probably it is so, as it certainly does not look so well as a tail as one farther from the head and hanging more in whip fashion. There is another kind of tail which is equally or more faulty still,

and this is what is known as a wry tail. In this the tail is carried on one side and is more unsightly than when carried over the back. Wry tails often come from in-breeding, as many fowls so affected have humps or deformities on the back. There is no cure for either, and the only way to avoid them is to be particular in not breeding from any fowls the least inclined that way, as imperfect tails are a great blemish in show birds.—J. MUIR.

FORTHCOMING POULTRY SHOWS.

WE have before us a number of schedules of forthcoming poultry shows, some of them of considerable interest to fanciers. First on our list is the Exhibition of the Altrincham Society, to be held on the 19th inst. at Bowdon. There are forty-one classes for poultry with three prizes in each, of 30s., 15s., and 7s. 6d., and twenty-four classes for Pigeons, with prizes of 15s., 10s., and 5s. The Secretary is Mr. Alfred Wilde, 41, Church Street, Altrincham. On October 5th, 6th, and 7th, a Show will be held at Southampton. A series of good and admirably managed shows were formerly held there, but of late have been discontinued, owing, we believe, to the poor attendance of visitors at them. The schedule now before us is a good one, and the Secretary is Mr. G. Billett, well known as a good manager of shows. The list is somewhat peculiar from the fact that in the poultry department cocks or cockerels have many more classes than hens; thus there are separate classes for both varieties of Brahma cocks, while the hens compete together—two classes for Cochin cocks, three for Dorking cocks, three for Game, while the hens of each breed will compete together. The schedule is altogether a liberal one for poultry, Pigeons, and cage birds, and we advise exhibitors to send for it. On October 6th, 7th, and 8th a Show will be held at Nottingham under the rules of the Poultry Club. The Hon. Sec. is Mr. R. Hill, 92, Parliament Street, Nottingham. The classification of poultry, Pigeons, and Rabbits is fair, and a list of subscriptions to a guarantee fund is published. This is a good plan. On October 18th and 19th, also under the rules of the Poultry Club, a Show will be held at Leek. There are four prizes in each of the sixteen classes for poultry, and three in the Rabbit and Pigeon classes. There is also a Show of cage birds, with four prizes in each class. The Hon. Sec. is Mr. F. J. Milner. On November 3rd another Show will be held under the Poultry Club rules—viz., that at Doveridge in Derbyshire. It is solely for poultry, to which forty-six classes are given. On November 9th and 10th a Show with extensive classification will be held at Carlisle. Game have eight classes, Dorkings four, Brahmas four, Coehins four, Hamburgs ten, &c. The Secretary is Mr. George Coulthard.

OUR LETTER BOX.

White Game Fowl (H. L. B.).—These birds are but seldom seen in the show pen, partly because they are scarce, and partly because they are not usually so good in the general characteristics of the Game fowl as to compete successfully with the other varieties of the breed. They were at first neglected in consequence of their real or supposed delicacy and their want of success in the fighting pit, and having once fallen behind have never recovered their lost ground. They are only suitable for a grass run where they can have plenty of liberty. In such a situation they will look well, lay well, and if killed at three or four months old will make admirable table fowls.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1881.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
September.			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun.	4	29.916	54.5	52.8	N.	56.0	66.5	43.4	108.6	42.3	
Mon.	5	29.753	57.0	54.1	N.E.	56.4	65.5	51.5	103.6	46.7	
Tues.	6	29.529	61.7	55.9	S.W.	56.6	67.0	53.9	113.4	52.0	
Wed.	7	29.614	58.2	54.6	N.E.	57.0	67.7	53.9	119.3	53.2	
Thurs.	8	29.737	55.3	54.5	N.E.	57.2	68.9	48.3	101.9	45.6	
Friday	9	29.854	56.6	52.5	N.	57.3	67.5	53.2	108.3	52.2	
Satnr.	10	30.000	57.7	53.9	N.	57.2	59.6	46.6	89.6	44.0	
Means.		29.772	57.0	54.0		56.8	66.0	50.5	106.4	48.0	
										1.447	

REMARKS.

4th.—Fine day, bright in the afternoon and evening.
5th.—Dull cloudy day, with heavy rain at night.
6th.—Wild morning, bright with occasional short sharp showers; thunder at noon; bright afternoon; rain at night.
7th.—Dull early; bright morning; very fine afternoon; fine evening.
8th.—Dense fog early; bright morning; cloudy afternoon; rain in evening.
9th.—Dull morning; bright afternoon and night.
10th.—Dull, with one or two slight showers.
The first part of the week was, on the whole, fine and pleasant, but with occasional showers; the latter part was dull and damp. Temperature average, and about 2° above that of the preceding week.—G. J. SYMONS.



22nd	TH	
23rd	F	Potato Show at Kelvedon.
24th	S	
25th	SUN	15TH SUNDAY AFTER TRINITY.
26th	M	Sale of Bulbs by Messrs. Protheroe & Morris, Tokenhouse Yard.
27th	TU	
28th	W	Sale of Bulbs at Mr. Stevens' Rooms, Covent Garden.

FRUIT AT SAWBRIDGEWORTH.

LESSONS worth learning can always be had at a great nursery, especially on that particular branch of practice for which it may be famed. Sawbridgeworth, as all the gardening world knows, is famed for fruit, and as this is the period when results can be seen—the harvest—an opportunity is afforded for spending an hour in Mr. Rivers' establishment interestingly, and a record of the information there gathered may not be unprofitable to some readers of the Journal on the eve of the planting season. It must be remembered that not only are all the most useful kinds of fruit grown in this nursery, and nearly all forms of culture adopted, but the best varieties of each kind are tested and new varieties proved; indeed, in not a few instances what the world calls "new," Mr. Rivers has good cause to almost regard as old friends, for he is in the habit of growing a new variety of fruit for a number of years and in large quantities before, to use a plain but well understood term, he "makes anything to do about it." This is the case especially with seedling Plums, Pears, Peaches, and Nectarines; and the observation applies with equal force to at least one Grape, for he grew the Gros Maroc for a generation before he exhibited it for a certificate and obtained one. The leading fruits of the nursery may be briefly alluded to under their respective heads.

GRAPES.

Very extensive structures are devoted to these, not only for growing Vines in pots, of which there are thousands, but for establishing the Vines and fruiting them in the manner in which they are grown in private gardens. A great number of varieties are thus tested, about three Vines of each being fruited. As may be expected in mixed houses, where what may be described as Black Hamburgh treatment is given, all the sorts do not succeed equally well, yet the crops on the whole are so good as to render the structures highly imposing. The variety named, for instance, Gros Maroc, is grand, the bunches being numerous and good, the berries of great size, and the colour splendid—a rich blue-black powdery bloom that no one can fail to admire. This is a noble exhibition Grape, sprightly and refreshing in flavour. The Vine is a strong grower, and closely pruned not infrequently a little shy; but as managed "at home" it produces bunches in abundance. Experience has proved that the short-spur system of pruning is not suited for this Grape. First of all the laterals must be trained thinly—20 inches apart is not too great a distance—so that the wood is matured, then a few inches at

the base of each should be left, and the probability will be that the cultivator will have bunches to thin out. A better plan still is probably to make a choice of young wood, and lay it in after the manner of Peach wood, disbudding to prevent that great evil overcrowding, and bunches may be expected from every eye. This Grape is not remarkable for large bunches, those on the Vines in question ranging from 1 lb. to 2½ lbs. In appearance this is the finest Grape in the whole collection, and its quality is decidedly good, the fruit possessing a good deal of the Black Hamburgh property of not cloying the palate.

The Gros Colman, the largest of all black Grapes, is bearing with almost equal freedom, but the berries are not quite finished, and it is a question if they will ever be of superior quality, for the simple reason that this variety requires more heat. This Grape has caused disappointment in many places, not because it is bad as a variety, but because it has not had a fair chance to develop its flavour. It is not a cool-house Grape, and the fact may well be remembered by those who contemplate adding it to their collections. Start the Vines early, give what is known as Muscat treatment, and under good culture Gros Colman will produce fine bunches and noble berries of satisfactory quality. Black Alicante is bearing prodigiously, 2 to 3 lbs. to each lineal foot of rod, showing that it is the heaviest cropper in cultivation, and being of excellent appearance it proves a profitable market Grape. Madresfield Court is in excellent condition, and apparently the older the Vines become, and the better crops they bear, the less do the berries crack. It succeeds well under Black Hamburgh treatment, and is undoubtedly one of the finest and richest of autumn Grapes. Mrs. Pince's Muscat is much finer than usual, and is colouring well. When in good condition this is a superior Grape, but it is too capricious to be relied on for planting in small collections, where the failure of any one rod is often a matter of great inconvenience. Even more capricious is the noble Duke of Buccleuch, yet it has produced several good bunches and fine berries with little or no spot.

Foster's Seedling is yet, perhaps, the most reliable white companion to the Black Hamburgh. Buckland Sweetwater is often seen finer and tasted better, but it is not so certain as Foster's. Neither of these Grapes give full and general satisfaction, and Ollerhead's White will possibly supplant them both. Certain it is that the two rods at Wimbledon House grow as strongly and fruit as freely as any rods need do, quite equalling Foster's in this respect, also in setting, while the fruit is as large or larger, a little deeper amber in colour, with a thicker skin, firmer flesh, and better flavour, the bunches being in size and shape all that can be desired. It is not, however, a Muscat Grape, and should not be injured by being overpraised, which is the unfortunate fate of many varieties when they are first seen. It may be fairly said it is an improved Foster's Seedling, and that is quite sufficient to stamp it as a variety giving promise of substantial merit and great usefulness. This is a digression, yet allowable, in a little discussion on Grapes. To return to Sawbridgeworth. The Black Muscat or Muscat Hamburgh is a comparative failure, so also is Waltham Cross; and these are not the only examples that denote the unsuitability, because of their uncertainty, of these varieties for small collections. Dr. Hogg is fruiting freely, bunches good, fruit small to medium, flavour a mixture

of Muscat and Frontignan, both moderately pronounced, and, perhaps, a trace of the peculiar aroma of the Strawberry Grape. Other ordinary varieties do not call for notice. The Ryton Muscat is esteemed as the best of the type, but the differences between the old Muscat of Alexandria, Bowood Muscat, Tynningham Muscat, and Tottenham Muscat are, generally speaking, more fanciful than real; but, however that may be, they are not all propagated from the same stock in this nursery.

Vines in Pots.—These demand attention. No one can see the thousands of fine "fruiters" and "planters" without wondering from whence comes the demand for them; but if the demand was not equal to the supply it is certain they would not be provided, and so even are they that there is little, if any, advantage to be had by picking and choosing. It is instructive to observe, too, how unnecessary is the practice of drying the roots for ripening the canes. The wood is as hard and brown as possible, yet the foliage is perfectly fresh, and so it will remain for some time—a sure indication of soundness and health. Two of the Vines of last year, a Muscat and Alnwick Seedling, are fruiting in their pots plunged in little beds of soil supported with bricks. The roots have taken possession of the soil, and are fed with liquid manure. The Muscat has ripened twenty-three bunches of good Grapes, or say 12 lbs., certainly worth from 3s. 6d. to 4s. per lb., so that this mode of culture is profitable. The Alnwick Seedling is ripening fifteen full and good bunches that will average nearly or quite a pound each. Several varieties of Frontignans are fruiting. It is surprising that these delicious Grapes are not more extensively grown. They are small, it is true, but for quality there is none to equal them, while they bear most freely and are early. Very good were the Early Saumur and Early Silver Frontignans, but others of the race are equal to them. They are not market Grapes, but are worthy of the attention of those who regard superior quality of greater importance than size of fruit.

PEACHES.

The crops of fruit of these have never been finer, and the large, cheaply built, span-roofed orchard houses must have been very profitable. The trees are grown in much the same manner as standard Apples in the garden, and receive little or no more attention than Apple trees do in pruning. These houses are not heated, but in northern and cold localities artificial heat is essential for insuring crops; indeed it adds to the value of Peach houses anywhere, and the returns justify the little extra outlay involved. Trees on trellises in other houses are also bearing splendid crops, one row of 4-inch pipes being arranged round the structures. Air is admitted by short lengths of earthenware pipes laid on the ground at intervals, one end in the house, the other outside, the ventilation being governed by moveable plugs. This plan is very simple and efficient.

The varieties of Peaches are so numerous that it is no easy matter to make a selection for securing a succession of fruit of good quality. The American variety Alexander must now be placed at the head of the early kinds. It is as early if not earlier than Early Beatrice, and is large in size, rich in colour, and of excellent flavour. Early Louise follows, a rather small but good Peach, and may be dispensed with in small collections. Early Rivers, larger and a finely flavoured fruit, and is succeeded by Hale's Early, a well-known and approved variety. To this Rivers' Early York, a most excellent Peach, affords a good succession. Then come the Early Grosse Mignonne, very good; A Bee; Magdala, fine and distinct in flavour; Dr. Hogg, rich in colour, and is proving a profitable market fruit; Alexandra, a splendid Peach; Grosse Mignonne, old and excellent; Bellegarde, a well-known good variety; Royal George; Noblesse; Gladstone, a great bearer and a valuable Peach; Albatross; Princess of Wales, very large and good; the Nectarine Peach, and Desse Tardive. These are only a few out of a long list of excellent varieties, but sufficient have probably been named for the majority of cultivators.

NECTARINES.

There has been, and indeed is yet, a grand harvest of these, and the fruit of some of the newer varieties is remarkable by its size and excellence. Indeed Nectarines have been revolutionised at Sawbridgeworth and are yearly increasing in popularity, although the demand for them in the markets is not nearly so great as for Peaches. The best of them have a richness, fulness, and wine-like flavour which Peaches lack, while they keep better—qualities that are becoming more and more appreciated. The earliest Nectarine is Advance. It is large and rich if not gathered until it shows signs of shrivelling. Lord Napier follows. It was raised by the present Mr. Rivers, and it is certainly not surpassed for a combination of good properties, if equalled, by any other variety. Humboldt is large and rich, and the Improved Downton and

Stanwick Elrge are varieties of great merit. Then follows Albert Victor, one of the largest of all. A fruit casually gathered was 9½ inches in circumference and weighed 8 ozs., quality excellent; it will be largely cultivated as it becomes better known. Spenceer is a large and excellent fruit worthy of notice. Then comes the better known and valuable Pine Apple, followed by Victoria, the best of all the late varieties, and, grown under glass especially, is very superior, and the fruit is very large. A new variety, Dryden, will probably take a prominent position when it becomes known on account of its full, very distinct, and rich flavour; it is also a large and fine fruit. The older varieties are not specially attended to, not because some of them, such as Balgowan, Violette Hâtive, Hardwieke, and others are not good, but because they are sufficiently well known; but they are not in all points equal to the newer introductions.

PLUMS.

Many new varieties of these have been raised, several of which have not been named. There are large plantations of the best old and new sorts, and many trees trained to wire as diagonal cordons are very attractive, convenient, and decidedly profitable. The Early Prolific has again been very lucrative, 16s. per bushel having been obtained for the crop. The Czar is proving valuable for succeeding it, and the best testimony of its merits is the great demand that exists for trees for the Kentish orchards. The Sultan, too, is a fine Plum, and the Purple Gage is very useful. Large crops were being gathered of that very fine Plum Pond's Seedling, which is larger than Victoria and succeeds it, but is not quite such a great cropper. Early Transparent Gage and Oullins Golden Gage are meritorious, the last making splendid standards. Of the late sorts we have Grand Duke, a valuable acquisition, and there is quite a plantation in full bearing of another fine late variety not yet named; it will perhaps be the Grand Duchess, as it will assuredly be a worthy companion to the Duke. The fruit is large, crop full, and although the fruit was quite hard it was richly coloured, being covered with a thick powdery violet-blue bloom that gives it a beautiful appearance. It is singular that, although this appears to be of the Diamond type, it was raised from Reine Claude de Bavay. It is a variety of great promise, as indeed other seedlings are that, however, have not been so fully proved as this.

CHERRIES.

Of these the most noteworthy trees are in pots in a house with boarded sides and a glass roof, from which a regular supply of superior fruit has been maintained since June, and there are varieties not yet ripe. Who with the means for growing the trees would be without a supply of this delicious fruit, since it can be had so easily, certainly, and inexpensively, and preserved so well? The following is a small and good selection for this purpose—Bigarreau Jaboulay, Early Rivers, Governor Wood, Bigarreau Noir de Schmidt, Late Black Bigarreau, Monstrueux de Metz, and two valuable late varieties not yet ripe—Emperor Francis and Guigne de Winchel.

PEARS.

Only a few of the newer varieties can be referred to and brief reference made to the trees in pots. They are laden with fruit, far finer than that on the ordinary outdoor trees: indeed, with one striking exception, which will be noticed, it may be said that except on the trees in pots the Pear crop is a failure. There was an abundance of blossom, but it failed to set outdoors. The pot trees have the shelter of glass until the fruit commences swelling, and are then plunged in the open air to mature the crops, and the results show the advantages of the system. The trees, 3 to 4 feet high, are in 9 and 10-inch pots, and as they are plunged closely together they occupy little space. The few new Pears that demand attention are Autocrat, a very large Pear, ripening at the end of October. It was raised from Beuré de Capiaumont, and is very hardy, robust and free, and is quite distinct in growth and fruit. Princess, raised from Louise Bonne de Jersey, the excellent flavour of which it inherits, but the fruit is half as large again and ripens at Christmas. But the most striking Pear in the nursery is Fertility, not because it is large, nor that the fruit is of the highest quality, but because of the abundant crop. There is a far greater weight of fruit in a small plantation of Fertility than on the trees of all other varieties combined, which can only be accounted for by the great hardiness of the blossom of the Pear under notice. Judging by the remarkable appearance of the trees Fertility will become of great service for orchard culture and for producing a large supply of fruit for market purposes. Among the older Pears that have resisted successfully the frosts of spring is Marie Louise d'Uccle—an excellent variety that Mr. Witherspoon has found of special value in the north of England. Of the Pears now in use, or just

over, Beurré de l'Assomption is by far the finest, and is of superior quality.

APPLES.

Very briefly must these be referred to. Cox's Orange Pippin is far ahead of all other dessert varieties in the abundance of its crop, the trees being laden with highly coloured fruits. Among culinary Apples Lord Grosvenor commands attention by its extreme productiveness. It is of the Lord Suffield type, but the fruit is more dense and heavy--no small advantage. Stirling Castle is similarly productive and the fruit splendid. This is probably the finest and most useful late autumn and early winter kitchen Apple in cultivation, and trees should be freely planted; nor must the good and serviceable Ecklinville Seedling and the productive old variety Dumelow's Seedling be forgotten by those who intend planting. The new American Apple Benoni is fruiting, and justifies all that has been said of its symmetry and beauty.

The fruit trees of all kinds in pots are remarkable by their numbers and quality, trained Peaches in pots meeting with great approval, and this method of preparing them will have to be extended. The best varieties of American Strawberries have been tried in the nursery, but they have not equalled expectations, the climate not being suitable for fully developing their qualities. Thus not only what to plant but what to avoid planting may be learned in the practical and experimental fruit grounds and houses at Sawbridgeworth, and this record of a visit may not be without a measure of usefulness to some readers.—EXPERIENTIA DOCET.

RAISING HARDY PLANTS FROM SEED.

"J. W.'s" remarks on raising Carnations from seed reminds me of some plants of the variety "Grenadin," raised from seed sown last year, which have bloomed finely this season. The plants are dwarf, very free flowering, early, coming into flower a fortnight before any other. The flowers are brilliant scarlet and deliciously Clove-scented. Out of a number of seedlings a large percentage have double flowers. Like all the Cloves, propagation is readily effected by pipings inserted under handlights in sandy soil, kept moist, close, and shaded till rooted.

I agree with "SINGLE-HANDED" respecting raising plants from seed to secure a profusion of flowers, as they afford a far more pleasing display than florists' varieties, needing no cultured taste to appreciate them, and where display is a chief object the result is very satisfactory. It is, however, of primary importance that the seed be of a good strain, saved from the finest varieties only, and then the result with ordinary care will please all.

No enthusiast, or grower of Pansies, Pinks, Carnations, or Auriculas looks forward with greater interest to the blooming of the named varieties than to that of the many seedlings which he calculates will enable him to add one or more varieties superior in some respect to his other beauties. There is no raiser of plants from seed but will sooner or later come to making comparisons, and in the end selections, discarding the small ill-shaped flower for that most in accord with advancing taste regarding excellence of form, purity, distinctness, and brilliancy of colour and substance. The liking for Dog Roses will result in beds of glowing Hybrid Perpetuals and lovely Tea Roses; the beautiful wild Heartsease will be supplanted by superb Pansies, and the modest Violets give place to enlarged forms of improved fragrance.

"SINGLE-HANDED'S" meaning, I think, has been and still is misunderstood. His object was to show that it is practically impossible to follow the florists and have a display of flowers gratifying those uneducated in the florist's art. Those with an ardent love for flowers, and desiring them in variable profusion, would not seek for varieties that are notable only on the exhibition stand, where everybody admires them, when a much less expenditure in less refined plants would give them an abundance of flowers that would make their gardens gay and useful. There is no comparison of a garden Rose with an exhibition one; they are viewed from two different standpoints. Blooms of an Austrian Briar placed in comparison with Maréchal Niel would be ludicrous, and such, I must confess, are some of the inferences drawn by "SINGLE HANDED" from comparisons of single with double flowers. Single flowers as a rule are of brief duration, double flowers on the other hand are much more durable.

There is one thing that says much for single flowers—viz., they are just now fashionable. Yet, however much we may and do admire them, there is no need to imitate Nature in gardens other than to bring together such of her best and varied forms as will render them interesting and enjoyable to all beholders. A garden of double flowers would not please even a florist, much less a lover of flowers. There would be too much similarity. No

one has a keener perception for the beautiful than the florist, and he holds to his particular fancy uninfluenced by the search for novelty, which mostly constitutes fashion and commands popularity. Wherever there is beauty that can be rendered permanent by careful selection, and judicious crossing or breeding result in improvement, no pains or sacrifice are considered too great to secure the object in view. If the florist has spoiled any flower—I know not any—it certainly has not been in making a Daisy double or in giving a Chrysanthemum its incurved petals. The florist must have beauty up to or approaching some standard, transforming anthers into petals, giving fulness in place of sparseness, beauty instead of deformity. It is just the same with cultivators: whatever is grown is desired to be of the best, and every effort is put forth to improve the plant and flower. Some seek it by beginning with florists' varieties, and fail because they have not counted on such needing particular care and special treatment. Yet some enthusiast will take to the higher forms at once and prove successful, because failure only spurs him on to greater efforts. Violent contrast and glaring flower beds are all that are needed to satisfy some; heterogeneous masses, lavish in their floral wealth, gratify others; whilst a few go in for a little of everything, and have nothing at all from a cultural point of view.—G. ABBEY.

THE BEST TOMATOES.

AS soon as any plant, fruit, or vegetable becomes popular we have numbers of what are termed new and improved varieties of them. Sometimes there are good grounds for claims of the kind, but quite as often there are none. Many examples could be given to prove the truth of this, and amongst others the Tomato. The varieties of this we now possess are astonishing, their names might be given by the score, and those who desire only to grow the best must have much difficulty in making their choice. Nearly every year we take some popular class in hand to try for our own guidance and satisfaction, and this season we selected Tomatoes for trial.

Seed was obtained under thirty-six different names. Some of these which we knew to be good were grown as an early batch against the back wall of a lean-to vinery, a Pine stove, and in a Cucumber house; they were planted side by side in good loam mixed with cow dung. The plants were raised at the same time, and they were all planted out together and given the same chance in every way. Amongst them were many American varieties and some new sorts which were said to be distinct crosses. From these seedlings we expected much and obtained least, as not one of them really combined the qualities of both parents. Selected sorts are mostly the best, and the American kinds, although numerous, are certainly very diverse.

In making our selection we had two or three points prominently in view. The chief of these are productiveness, size, shape, and early maturity. Some varieties began to bloom and form fruit before they were many inches high, others extended considerably, and one named the French Free never had any fruit. Another one from America named Grape Shot turned out to be the Cape Gooseberry, and this was an agreeable substitute for the small Tomato we expected to see.

Amongst others, we had one from Mr. D. Thomson of Drumlanrig, and this we consider the best of all. It is very early, very fruitful, of fine size, and extra flavour. It somewhat resembles Stamfordian, but is far more fruitful than that variety. In weight it varies from 10 ozs. to 1 lb. It is a very robust grower and fruits at every joint, and it succeeds almost as well in a pot as planted out. When better known this variety will be sure to be much grown. Mr. Thomson does not call it a hybrid of his own, but a selection from Exeelsior, and it is much superior to that variety.

Next to the Drumlanrig Tomato we prefer Crossling's Glamorgan, which is a most abundant bearer of finely coloured well-flavoured fruit. It is more ribbed than the former and flatter in shape, and as a kind to grow for market it has much to recommend it. Another from Mr. Coleman of Eastnor bears a strong likeness to the Glamorgan in every way. Canadian Victor is a smooth red we are well pleased with. Acme is also a pretty fruiter, but it lacks flavour as most of its colour do, such as Vick's Criterion, Fiji Island, and others. Trophy is fairly good, much in the Glamorgan style, but not to be compared with it. Essex Hybrid is prolific, but is not a large fruiter.

Amongst the small ornamental kinds Carter's Red Currant is attractive. Its berries are about the size of large green peas, and fifty or sixty of these are produced on each bunch. For pots this variety would be most ornamental. Yellow Plum is another prolific ornamental variety. Its fruits are about the size of pigeons' eggs, and are produced in bunches of about a dozen

close together on the stem. These, too, among the small forms are what we have selected for future culture, and the Drumlanrig and Glamorgan are our large kinds. So decidedly superior are these four to the others that we do not consider the remainder worth further trial; but apart from usefulness, some growers attach considerable importance to variety in form and colour, and as a yellow Tomato Carter's Green Gage is noteworthy. This is a prolific high-flavoured variety, and may be added as a fifth to those we have chosen. Yellow Trophy of the same colour is much inferior, and Yellow Cherry is not so good as Yellow Plum. General Grant has been poor with us, and it appears to be small. Stamfordian fruits too sparingly to please us, and many of the fruit have holes in the centre. This is great blemish in any Tomato fruit, and should always be avoided in selecting fruit from which to save seed.

Few seeds are more easily saved than that of the Tomato, as it is quite ripe as soon as the fruit is ready for eating, and can easily be removed before cooking. Perhaps it may be as well to remark, that most of the kinds we have grown under glass have also been planted against the wall in the open air, and the results corresponded with those under glass.—J. MUIR, *Margam*.

ANTHURIUM SCHERTZERIANUM.

UNLESS potted in much too close and heavy soil this popular stove plant thrives fairly well; but we think even the orthodox mixture of fibry peat and charcoal too close for first-class results. To be sure, if the peat be fibry enough, and plenty of charcoal or crocks be added, and the plant is not overpotted and is carefully watered, very satisfactory success will attend the cultivator if the other necessary conditions—heat and cleanliness—be ensured. But we would recommend a mixture of sphagnum and charcoal alone. It is perfectly evident that in its native home it does not bury its roots in soil, but is a true epiphyte, the roots of which delight in moist air such as exists among growing mosses. It is, in fact, very much of the nature of an epiphytal Orchid, the roots of which will thrive and find sustenance enough in air alone if moist. Such conditions may not be very easily imitated, but a porous potful of clean fresh sphagnum and charcoal alone offers a medium in which Anthuriums thrive surprisingly.

Half filling the pots with crocks we consider a mistake. Ample drainage is decidedly necessary, for stagnant water is sure to cause the roots to decay, and then sickly plants must result. At the same time we recommend filling the pot with moss and charcoal from the bottom, with the exception of a concave crock over the drainage hole. When the pots are half, or even one-fourth, filled with crocks the best roots are starved, for to the bottoms of the pots the best roots go, and when they are there they should find something to live on. I can fancy some one exclaiming that there cannot be much in sphagnum, and perhaps there is not; but quite as much in fibry peat, so long as it remains fibry, and when it ceases to be so it is worse than useless.

A more generous diet assists them, however, as we have proved. This should not be in a substantial form, such as loam or other soil, but should be conveyed to the roots of the plants by means of water. We are learning now that a soil for plants in pots if mechanically right is very easily made chemically right, and that soil in pots, however generous to begin with, speedily has its good qualities exhausted by the plants or washed out by repeated waterings, and needs continual replacement by means of water. We like pots well filled with roots, for then we can keep the pots always moist with water tainted, and no more, with manure. We are never sure of not doing mischief with watering when small plants are in large pots, but it is quite different with large plants in small pots. When our Anthuriums fill their pots with roots we do not shift the plants, as some do, unless that be an absolute necessity; but we taint the water with sewage, which is as good and cheaper than guano, and we find the result to be a magnificent growth such as the plants never attained under the orthodox treatment. This being so, we certainly advise your readers to try the system here indicated. If the result sets neighbours asking questions a service will be done them if they are referred to this number of the Journal. We may add that the new Anthurium Andreanum will grow in a stove under the above treatment. We have seen several such plants under "Orchid Culture."—SINGLE-HANDED.

MUSTARD V. THE TURNIP FLY.—In many gardens, and still more farms this year, I noticed a second sowing had to be made owing to the ravages of the Turnip fly (*Haltica nemorum*, or more properly *Phyllotreta nemorum*), and this applies to the whole Cruciferae family, entailing loss of time, money and crops.

The usual remedy is dusting with slaked lime, sulphur, or both; road dust, soot, or drawing a tarred or oiled cloth over the plants to catch the ravenous black larvæ when they leap upwards. I noticed in a market garden to-day what was to me a novel remedy, though it may not be new to all your readers—a central line of Mustard, with seedling Cabbages, Cauliflowers, and Broccolis on one side, and various Turnips on the other, all without a leaf touched. I understand this is a perfect remedy.—W. J. M., *Clonmel*.

CHOICE PEACHES AND NECTARINES.

NEARLY all those who grow Peaches and Nectarines are anxious to know what are the best early varieties. Ours are grown in pots in a good orchard house, and they have succeeded remarkably well this year. Alexander is certainly the best early Peach; next to it is Amsden June—both American-raised varieties. Alexander is the better of the two. The fruit is larger and quite of as good quality as that of Amsden June. They ripened together in the same position. They both produce better fruit than Early Beatrice, and were a few days earlier; but I ought to say that the tree of Early Beatrice did not occupy quite such a good position. Goshawk (Rivers) is a very good late Peach, bearing some resemblance to Barrington, but earlier; the fruit is of large size and excellent quality. Lord Napier is the best early Nectarine—no other ought to be named beside it. The fruit is of the largest size, the best quality, and is the earliest good Nectarine. Stanwick Elruge is also a splendid, richly flavoured, highly coloured variety, ripening before Violette Hâtive or Elruge. It should be grown in the most select collections.—J. DOUGLAS.

THE PROPAGATION OF CONIFERS.

(Continued from page 216.)

IN addition to the large number of Conifers raised by cuttings thousands are annually propagated by means of grafting. The extent to which this operation is carried out in large nurseries where Conifers are a speciality would surprise those who have no knowledge of such work; but the most surprising part of all, when the work is judiciously performed, is the small number of deaths that follow. Successful results mainly depend upon proper accommodation for treating the plants after they are grafted and after they leave the propagating house. The Conifers grafted are principally new and choice varieties. Whether they succeed better on their own roots or when grafted it is not the object of these notes to consider; but one thing is certain, that delicate-growing kinds are considerably improved when worked on strong-growing stocks. By grafting, a stock of young plants can be raised more quickly than by cuttings, for if propagation by cuttings only were adopted a considerable time would elapse before plants are sufficiently developed to give many cuttings. The portions of growth employed for scions can be much smaller, and in consequence a good stock is raised in less time.

Before the operation of grafting is performed considerable labour is entailed in preparing the stocks. Generally they are established in 3 or 4-inch pots. The stocks are potted any time during the winter and spring as opportunities present themselves—for instance, during wet or bad weather, when it is impossible to proceed with outdoor work. The plants selected for the stocks are not the most handsome specimens, because those generally are selected that are not likely to become symmetrical plants; but they must be free and healthy. One or two crocks are placed at the bottom of each pot, and the stocks are potted in a soil consisting of good loam, a portion of decayed manure, and a little red or river sand. As the stocks are potted they are placed outside and plunged, covering the pots with soil, or they are placed on hard beds and the spaces filled in between and over the top of the pots with spent tan, ashes, or any material that may be at hand. They remain in this position through the summer until required about this season of the year for grafting. The only attention they need is to give them plenty of water, the object in plunging being only to save labour in this respect.

The stock usually employed is *Cupressus Lawsoniana* for *C. L. lutea*, and *lutea aurca*, *C. pyramidalis alba*, *p. argentea*, *p. sulphurea*, and other choice kinds. Choice Junipers, such as *J. chinensis aurea*, *J. japonica albo-variegata*, *J. japonica aurea*, and others are worked on the common *J. chinensis*. Many of the Golden and choice Yews are worked on the common English Yew, *Taxus baccata*. The choice and Golden Thujas are worked on *Thuia occidentalis*, others on *T. gigantea* and *T. orientalis*. *Thuia borealis* is used for *T. b. aurea*, *T. argentea variegata*, and the variegated form of *T. dolabrata*. The common and strong-growing *Retinosporas* serve for the rare and more beautiful varieties.

Wellingtonia gigantea, which is raised in quantity from seed, is used for *W. pendula* and the variegated form of *W. gigantea*. The same system is carried out with other classes not mentioned, but an idea may be formed of the variety of stocks employed.

When the grafting time arrives the stocks are carried into the Coniferæ house to be worked, and as soon as the operation is completed the plants are placed in the frame and kept close for a time. Before grafting and as the work proceeds the stocks are trimmed clean at the bottom and the tops are frequently cut off; the side branches of the Yews are also well shortened to allow the plants to stand close together after they are grafted. The mode of grafting adopted is that known as side-grafting. The cut on the stock is made in a downward direction to the pot about three-quarters of an inch in length, leaving in removing this portion a small ledge or angle for the base of the seion to rest in. The seion must be cut clean so as to fit well the cut on the stock, and be made secure by means of worsted, no clay nor wax being necessary. The size of the seion employed greatly depends upon circumstances. If the stock of plants is limited very small pieces are generally used. Although the large seions when established make finer plants by planting-out time it would be unwise to have the seions too large, and as a rule they never exceed if equal those used for cuttings. Any of the side growths are suitable for seions providing they have every appearance of afterwards becoming good plants. The treatment of these plants while in the propagating frame consists of watering and dewing them frequently with the syringe. After the frames are kept close for a time the lights are lifted at night and replaced in the morning. This treatment is continued until the stock and seion are united when the lights have been finally removed, and if favourable a little air is given to prepare the plants for removal.

The time of removing the plants very much depends upon what is required to take their place in the propagating house. If wanted for starting any other plants the Conifers are removed directly the stock and seion are thoroughly united and the plants have been prepared for their new quarters. I have seen thousands removed and die by scores afterwards; no fault could be attached either to the grafter or to those in whose charge they were placed. The question may reasonably be asked, What was the cause of death? The answer is, The want of proper accommodation and convenience to give the plants the attention they needed. In a large Coniferæ-growing establishment I have seen hundreds of plants die through being placed in low cold pits instead of having a little heat and encouraged until the severe weather was past. A number of low span-roofed houses were afterwards built with a bed on each side 3 to 4 feet wide, and a narrow path down the centre with a flow and return 3-inch hot-water pipe. These were capital houses, and could not have been better adapted to the convenience of the plants. The rate of deaths decreased considerably when a little heat was given. A temperature of 40° to 45° when the plants are first removed from the propagating house is suitable, and afterwards only sufficient to exclude frost. After the month of March artificial heat is unnecessary.—W. BARDNEY.

(To be continued.)

A COTTAGERS' HORTICULTURAL SOCIETY.

PROBABLY in but few districts do the cottagers receive greater encouragement to cultivate vegetables, fruits, and flowers than do those in the district round Mells, near Frome, Somerset. This is mainly due to the exertions of the Rev. G. W. Horner and Dr. Terry, the latter acting in the capacity of Secretary. The village on the annual exhibition day assumes a gay holiday appearance, and the large rectory barn where the Show is held is invariably thronged with appreciative visitors. As a consequence of this encouragement the cottagers are becoming quite proficient in vegetable and flower culture, and grow varieties of known excellence—in marked contrast to those in other districts where no similar stimulants to exertions are given. A collection of six varieties of vegetables, staged by James Daniels, consisting of Ne Plus Ultra Peas, Veitch's Autumn Giant Cauliflowers, Suttons' Reading Onions, Snowball Turnips, James' Intermediate Carrots and Parsnips, would have made its mark at the great Manchester Show. Better Parsnips were never shown. Other exhibitors also staged capital vegetables. Next in importance to the classes for collections were those for Potatoes, and here the awards of competent judges on previous occasions have resulted in the gradual extinction of such uncertain varieties as Early Rose, Climax, Prolifics and Flukes, and the widespread cultivation of such superior varieties as Myatt's Ashleaf, Schoolmaster, and Magnum Bonum. There were abundant specimens of these staged equal to any we have seen elsewhere. Onions, Cabbages, Parsnips, Turnips, Beet, Marrows, Pumpkins, and Beans were all well represented. A few very good dishes of Apples and Plums were staged, and nosegays of garden and wild flowers were exhibited extensively, and in a few instances were tastefully arranged.

In addition to the cottagers' plants a large group of flowering and

fine-foliage plants was tastefully arranged by Mr. Tickle, gardener to the Rev. G. W. Horner, and the same exhibitor also filled a table with a generally good collection of vegetables. Mr. T. Wheeler, gardener to G. Walters, Esq., Wadbury, brought a basket of well-grown Muscat of Alexandria and Black Hamburgh Grapes, and a dish of highly coloured Peaches. At the conclusion of their labours the Judges were requested to write in a book their opinions upon the various exhibits, and to make suggestions for the guidance of the Secretary and exhibitors, this being read to the latter the next evening when the prizes were presented. This is decidedly worthy of imitation by other societies.—W. I.

CLETHRA ALNIFOLIA.

WHEN this dwarf hardy summer-flowering shrub is blooming freely, as it was seen in Mr. Van Geert's collection in August, it is extremely attractive. Spikes of flowers, many of them much larger than those shown in the engraving, are produced from every axil; indeed so freely were the flowers produced that the low bushes bristled with them. They are creamy white in colour,



Fig. 44.—*Clethra alnifolia*.

delicately fragrant, and, associated with the fresh-looking light green foliage, are admirably adapted for vase decoration. Being a native of the swamps of Virginia it requires moist, deep, and tolerably rich soil. The soil in which it was succeeding so well was a light, free-working, and rather sandy loam. It is worthy of a suitable position in the front of shrubberies, or even in large borders of herbaceous plants that are grown for affording flowers for cutting. It is deciduous, quite hardy, and was introduced in 1731. It is of close and rather compact habit, and grows about 3 feet high.

LATE VEGETABLE MARROWS.

PLANTS of these which have been fruiting for some months are now becoming exhausted. The fruit which formed early is

fully grown, and more than likely too old for use, and so long as these are on the plants few young fruits will ever swell to a useful size after this time. For some years past we have cut every old fruit from our Vegetable Marrow plants about the middle of September, and after that they appear to take fresh life, as they bloom freely and form many fruit, which can be had in the most delicate state during October and sometimes in November. At the present time we have a stock of young Vegetable Marrows coming on our plants as if it was the month of July, and all we do to secure them is, as we have said, removing all old fruits. Those who have not tried this plan should do so at once, and they will be more than satisfied with the result before many weeks are past.—J. MUIR.

A WEEK IN BELGIUM.

[THE SECOND DAY.]

THIS was the Show day at Antwerp, or rather the day of preparations, for all great events open on Sundays in Belgium. We shall never have time in England for preparing so deliberately for a show as they do "over the water." With us all is hurry, rush, and work; with them it is steady yet thorough enjoyment. This is in brief the routine: We first sip wine for two hours until the jurymen are ready, or the plants are ready for examination; then we work for two hours very pleasantly, then engage in luncheon for two or three hours more, and afterwards—but this unofficially—retire to the outside of a café and drink coffee from glasses. This latter practice is quite an institution, and originated with a detachment of the French army which found itself in a position where coffee was plentiful but cups scarce; glasses were, however, within reach, and the coffee was so much enjoyed in them that the custom became established. By the way, I could not help fancying that had we so fixed ourselves in London and all the foot passengers had to step into the road to pass on their way, that some officious personage might have considered we were obstructing the footpath. But they are not so particular in Antwerp, at least in some parts of it where the streets are wide; and as for the cafés, they appear to be under much less restrictions than our taverns, for they can keep open for a week if they like, and gentle and simple mix together in them, classism being decidedly less pronounced there than here. After the show comes the banquet, at which there is a pleasant gathering of horticulturists, and laudatory speeches elicit responsive "bravos," which are at least as euphonious as our jerky English "hear hears," especially when they degenerate into "yaw yaws," as they do in some assemblies. Such is a slight sketch of the proceedings in connection with a Belgian show, and if those Britishers who are there are not happy it is certainly not the fault of their hospitable hosts and ever-courteous friends.

It has been said that the work in show preparation is more deliberate in Belgium than here, yet undoubtedly someone must labour diligently; this is generally the secretary, and in connection with the Exhibition in question Mr. Van der Linden, who occupied that position, worked so assiduously that the result was utter prostration on a bed of sickness. The labour and the worry of the working officials of shows generally are greater than the outside public have any idea of, as many a secretary and manager in this country knows to his cost, the last being Mr. Bruce Findlay. Let, therefore, no one be unduly severe in their criticism of these public servants if every detail is not perfect, but rather let them be judged by the general results and on a broad and liberal basis. In Belgium military aid is rendered at the horticultural exhibitions. A detachment from the army is placed at the disposal of the "architect" who arranges the plants, and the soldiers, trained to obedience, are found very tractable and useful helpers. Soldiers, too, guard all the doors, and generally perform the duties that policemen do with us, these being mostly, and happily, of an ornamental character.

"Are the shows crowded with visitors?" is a question that has been frequently asked of me. I must answer in the negative, subject to one important qualification. If the Royal Family visit a show in England the public flock there, and it is the same in Belgium, only there Royal patronage is more readily granted than it is here. If the exhibitions are not attended by Royalty there is abundance of room for the plants to be examined without the crowding that is seen at a national Rose show or at a Manchester Whitsuntide fête. The continental societies are, however, pretty well independent of "gate money," and the chief object of the exhibitions appear to be to afford means for the intercommunion of friends and the advancement of commercial horticulture, which is such an important industry of the nation.

We now take a stroll through the town and suburbs—not, however, this time entering either the churches, many of which are so

beautiful, the celebrated cathedral, or the museum, which contain the masterpieces of Rubens and others of the celebrated old Flemish painters—but to look at the trees, shrubs, and flowers. The winters in Belgium during the past three years have been very intense—quite as severe as with us, judging by results, for many of the Planes in the boulevards have been injured, while all the Hollies and nearly all the Rhododendrons in gardens and nurseries have been killed to the ground. One of the finest specimens in Europe of the Umbrella Pine (*Sciadopitys verticillata*) in the Zoological Gardens was unfortunately destroyed last winter, though it is gratifying to notice that Japanese shrubs and Conifers have generally passed through the winter with impunity. The Golden Catalpa is freely employed in ornamental planting and is highly effective, the trees being pollarded annually like Willows; the result is round-headed trees with fine golden leaves. This is the best plan also of treating the Golden Elder, and also, as will be hereafter shown, of managing that grand shrubby ornament *Hydrangea paniculata grandiflora*. Carpet bedding is extending, and some of it is good; but there is a lack of that high finish that is apparent in the London parks. The *Alternantheras*, however, were brilliant in colour; and the Golden *Spergula* (*S. pilifera aurca*) formed a more close and satisfactory bright golden carpet than can be produced either by the Golden Feather or Golden Chickweed, and carpet-bedders might well try this plant in England. It was introduced by Mr. Charles Van Geert, and has been exhibited by Messrs. Veitch; but a few plants in pots afford slight index of its appearance as seen established in lines and panels.

Now a glance at domestic floriculture. Famous as Belgium is for its nurseries, and great as is the horticultural industry of the kingdom, the Belgians as a body do not appear to be a flower-loving people to anything like the extent the English are. There is none of that beautiful window-sill gardening in Antwerp that is growing so rapidly with us, and that forms such an attractive feature in many suburban thoroughfares and country homes; while window plants there, which are almost exclusively Palms, are only seen in hotels and the homes of the well-to-do classes, the working population not indulging in the luxury of plants nearly to the same extent that is apparent in England. The plants offered in the markets, too, are immeasurably inferior to those splendid examples of culture that are provided in millions for the adornment of British homes. The purchasing power of the operative classes in Belgium is much less than in England, and there is possibly nothing left for luxuries, or if there is it is certainly not expended in plants and flowers. As a rule the ordinary workers in nurseries and gardens receive about two francs (1s. 8d.) a day from 6 A.M. to 8 P.M., the women earning about a penny an hour. Mr. Van Geert, however, has long tried the experiment of having no fixed scale in his nurseries, but payment is governed by results; his men are thus encouraged to make their services as valuable as possible, knowing they will receive a just reward. It is gratifying to learn that this plan answers admirably and proves mutually advantageous.

As the "second day" was brought to a close in the establishment just alluded to it may be appropriately, if briefly, described. It is not a large nursery—not indeed so large as formerly, but a visit under the guidance of the experienced proprietor and his skilled son and coadjutor is both pleasant and instructive. It was once outside the fortifications, but is now within those formidable lines, and the pressure of builders has been irresistible—hence the reduction of this and the establishment of a country nursery. It is as much like a trial ground or a small botanical garden as a nursery, the owner having for his own pleasure collections of various plants, and has spent a long life in conducting experiments in culture and instituting comparisons and making selections of various plants; for instance, all the *Ceanothuses* he could obtain have been recently tried, and now all are discarded but three—namely, *Gloire de Versailles*, blue; *Marie Simon*, pink; and *Nivens*, white. These having been proved to be of sterling worth are propagated largely, and beautiful they are for beds, borders, or walls. The former is better known in England than the two latter, which are particularly chaste, their elegant clusters of flowers being admirably adapted for vase decoration. Many beautiful variegated trees and shrubs, also ornamental Japanese plants, are grown. An Elm (*Ulmus media alba-marginata*) is as striking in the distance as the Variegated Maple, the white so greatly predominating and so pure. The tree is of free growth, with large leaves, and cannot fail to form a conspicuous object in shrubberies and ornamental plantations. Variegated *Weigelas* form bright fringes to larger trees, and *Philadelphus coronarius variegatus* is very clearly margined with white, and would have a fine effect in shrubberies. The Golden Box, for edgings and as dwarf plants for balconies or the margin of shrubberies, is not

only very bright but has, somewhat unexpectedly, been less injured by the extreme frost than any other variety. Hardy Ericas, a fine collection; the best varieties of hardy Azaleas, rare and choice shrubs and Conifers, Clematises, and aquatics, are all represented here.

Very striking are some ornamental Japanese plants that, since their hardiness has been proved, will impart a fine feature to shrubberies. Among them are *Rhus Osbecki*, a native of China and also of Japan. It flowered here last year as a small tree, about 7 feet high; the flowers were produced at the top of the stem in the middle of a crown of foliage, and looked like an immense bouquet of *Spiræa ariæfolia* 2 to 3 feet diameter. Such a mass of white feathery plumes in contrast with the grand foliage must have had a fine effect, but even when not in flower the plants are highly ornamental. *Rhus juglandifolia* is perhaps still more striking in growth and foliage. The leaves are of great size, somewhat resembling those of the Walnut, as the name implies, but far larger and finer. It was received as a new introduction from Japan, and is certainly of noble appearance, and is a plant or tree of great promise. *Phellodendron amurense* is also of remarkable appearance. It is described by Ruprecht in Koch's "Dendrologie" as a native of Amur in North Asia. In leaves and growth it has some resemblance to *Rhus juglandifolia*, although it belongs to another family—Rutaceæ. Of its flowers and height Mr. Van Geert knows nothing, but its foliage is certainly magnificent. *Aralia Maximowiczii* is distinct and fine, the leaves being large, deeply lobed, and of a reddish-brown hue changing to dark red, and will be valuable for many decorative purposes. It is new, and I understand it was first sent by Maximowicz from Amur to Dr. Regel of St. Petersburg. When it is remembered that these plants were uninjured last winter where all the Hollies surrounding them were killed their value is enhanced, and they must be regarded as valuable acquisitions highly worthy of the notice of cultivators. Two dwarf flowering shrubs also deserve notice—*Clethra alnifolia* and *Hydrangea involucrata vera*, sprays of which are figured in another column. Both were very attractive, the latter being highly distinct and seldom seen.

Hardy Hibiscuses appear popular, and certainly few if any summer and autumn-flowering shrubs can equal them. A blue, *H. syriacus cœlestis*, is now added to the red, rose, and white varieties, and is an acquisition; but all the colours are beautiful, and the shrubs under favourable conditions flower in quite a small state. Belgium is not a Grape-growing country, yet there is a fine collection of Vines in this nursery. They are not grown in pots but planted out, some in baskets to facilitate removal, and the splendid canes indicate how well the soil is adapted for Vines, and if the same attention and skill were devoted to their culture under glass as in England superior produce could not fail to be obtained. Possibly Mr. Van Geert is working on the principle that supply creates a demand, for certainly he has an extensive collection of Vines carefully selected and well cultivated.

The glass structures and pits are tolerably extensive. A fine curvilinear house about 120 feet long by 20 feet wide has been recently completed, and is wholly occupied with Palms. Grand specimens of *Corypha australis* and *Latania borbonica* occupy the centre, and small healthy portable specimens of all the more useful kinds are represented in thousands. As much care is taken in sponging the plants and keeping them clean and healthy as is devoted to choice Orchids in this country. Other houses of the same length are filled with Camellias, and brick pits are devoted to these plants, many of which are planted out. These pits are not heated, but the glass is covered with protecting material in the winter. Pits of a similar character are devoted to the raising of Conifers and choice evergreens, for which this nursery has long been famed.

Large numbers of Camellias in bud are arranged under and amongst Lombardy Poplars, and so have the shade that is found essential for producing rich green foliage; and a very enjoyable arcade of Hornbeam accommodates groups of plants ready for export to England and other countries. This arbour is about 100 yards long and nearly 3 wide. The trees have been planted 6 feet apart, three branches trained from each tree, the spring of the arch being about 9 feet from the ground, and the apex 3 to 4 feet higher. There are side openings between the trees 3 feet wide, and the whole is ornamental, useful, and enjoyable. The branches, it should be said, have been trained with great precision and regularity, indicating that much care has been exercised in completing the work.

A great number of handsome Bays in tubs break the level appearance of the nursery, and colour is imparted by Clematises and Liliums. The "best of everything" is evidently the motto of the establishment, and is even carried out in the Willows grown for securing packages, for all the best were tried, and *Salix*

uralensis showed its decided superiority, and is now exclusively cultivated; it produces annual growths 10 feet in length, slender, and extremely tough and pliable. It is so manifestly good and useful that it is named here for the benefit of those who employ Willows largely during the planting season.

The whole establishment is clean and orderly, but it is in a great measure only the propagating ground of Mr. Van Geert's much larger nursery at Calmpthout, at which a day was spent profitably and pleasurably.—J. WRIGHT.

PRODUCE OF POTATOES.

I HAVE much pleasure in forwarding you the enclosed, and if it is likely to be of sufficient interest to any of the readers of your excellent Journal it is at your service. I have still twenty-two sets to lift, but they will not be fit for a month or five weeks.—A. TITE, *The Vicarage, Thornton Steward*.

POTATOES PLANTED MARCH 30TH, 1881, LIFTED SEPTEMBER 8TH, 1881.

	Weight of sets.	Number of tubers.	Weight of tubers.
	ozs.		lbs. ozs.
Fox's Seedling	2	7	2 0
McKinley's Pride	1	10	0 13
Suttons' Improved Ashleaf	13	16	2 0
Early Ashleaf	34	30	3 11
Myatt's Ashleaf	24	17	3 10
Rivers' Royal Ashleaf	31	13	1 13
Gloucestershire Kidney	2	18	2 8
Yorkshire Hero	21	15	1 13
Carter's Eight-weeks	5	18	2 14
Early Hammersmith	21	22	2 14
Early Handsworth	4	28	2 14
Carter's New Purple Ashleaf	31	15	2 13
International	33	21	4 2
Covent Garden Perfection	23	18	2 14
Bressee's Prolific	31	17	3 8
Beauty of Hebron	41	16	6 0
Early Coldstream	4	16	3 6
Compton's Surprise	2	13	3 4
Mona's Pride	23	24	3 4
Pride of America	23	33	8 0
Rector of Woodstock	3	27	5 7
Brownell's Superior	3	10	4 9
Woodstock Kidney	4	24	4 6

BRIGHTON HORTICULTURAL SOCIETY.

THERE was not a large number of plants at the Exhibition held on the 14th and 15th inst., and without some of the leading local nurserymen both the competition and the display would have been poor. As regards quality, however, most of the collections were very satisfactory. Fruit we have also seen more largely represented there at previous shows; and though some of the black Grapes were good, of fair size, and well finished, there were no examples of special merit. Peaches, Nectarines, Apples, and Pears were numerous, and in several cases very creditable to their exhibitors.

Plants.—Some groups and collections were staged in the handsome apartments of the Pavilion, but the majority was arranged in a long marquee in the grounds. One of the chief classes was that for a group of plants arranged for effect in a space not exceeding 150 square feet. Two competitors appeared—namely, Mr. W. Balchin, Western Road, Brighton, and Mr. W. Miles, Cliftonville, the former being successful in securing the leading prize, the Ashbury cup, valued six and a half guineas, which was offered by James Ashbury, Esq. This group consisted chiefly of neat specimen fine-foliage plants, including Palms, Ferns, Crotons, Dracænas, and Coleuses, several well-grown examples of *Liliums* contributing to the brightness of the collection with other flowering plants, edged with *Selaginellas* and *Adiantums*. Mr. Miles was placed second with a group arranged in a very similar manner—in fact there was little difference in the relative merits of the two collections. In the Sussex amateurs' and gardeners' division of the schedule a similar class was provided, the first prize in that also being a silver cup value five guineas. Three groups were staged, the chief honours being secured by Mr. Meachen, gardener to C. Armstrong, Esq., Withdeane, who had a neat arrangement of Crotons, Lilies, Ixoras, Marantas, Pelargoniums, Ferns, and Coleuses, a fine specimen *Yucca aloifolia variegata* at the back being noticeable, and near the fore part of the group was a plant of the pretty Orchid *Vanda cœrulea*, bearing over a dozen large and delicately tinted flowers. Mr. Turner, gardener to Major Wray, followed very closely with a pretty group, in which double Tuberoses were freely employed and with excellent effect. Mr. Howick, gardener to A. Granville Uttermare, Esq., Withdeane House, took the third position with a bright arrangement, but a little too flat.

For eight stove and greenhouse plants in the open class Mr. Balchin carried off the chief prize, having amongst others good specimens of *Erica cinethoides carinata* and *Statice imbricata*, the latter being extremely fine with abundance of flowers. Mr. Hinggett, gardener to D. Jeffery, Esq., Eastbourne, followed, his most noteworthy plant

being a specimen of *Swainsonia galegifolia alba* flowering excellently. In the class for four stove or greenhouse plants Mr. Gilbert of Hastings was worthily adjudged the leading position for admirably grown plants in first-rate condition. *Vallota purpurea* with over a dozen trusses of flowers was particularly fine, and was greatly admired. Another notable plant was *Erica turgida* with abundance of its long tubular flowers. Mr. Miles and Mr. Townshend, gardener to Capt. Thompson, Withdeane, carried off the other prizes in the class, both showing fairly well.

Fine-foliage plants were well represented in the open class for eight varieties, J. Warren, Esq., Handcross Park, Sussex, being the most successful exhibitor, taking the premier position with handsome specimens of *Cycas revoluta*, *Croton Hendersonii*, *C. undulatus*, *C. interruptus*, *Encephalartos villosus*, several *Gleichenias*, and a grand example of *Dicksonia squarrosa*, which was tilted sufficiently to show the magnificent crown of fronds to the best advantage. Mr. Balchin was a good second, his most remarkable plant being a *Musa Ensete* 12 or 14 feet high. Mr. Miles secured the third position with fine specimens of *Chamædorea elegans* and *Encephalartos villosus* amongst others. In the Sussex classes for fine-foliage plants Messrs. Meachen, Howick, and Townshend carried off the chief prizes with healthy well-grown specimens. In the long marquee other noticeable exhibits were the *Pelargoniums* and *Fuchsias*, the former being fairly bright, but neither call for special comment.

Cut flowers were numerous, the Dahlias forming the chief feature in the display. The principal exhibitors were Messrs. Keynes & Co. of Salisbury, who held the leading positions in all the classes they entered. The blooms were of excellent form and the colours clear and bright, a large number of the best Show and Fancy varieties being represented. Mr. W. Seale of Sevenoaks followed in most of the classes, showing blooms of great size and fine colours. Roses were contributed by Messrs. Paul & Son, Cheshunt; Mitchell & Son, Piltown, Uckfield; A. Slaughter, Steyning; and Seale, who exhibited very creditable blooms for such a late period of the season. Asters were similarly well represented by collections from Mr. Alfrey, gardener to Miss Nevill, and Mr. Morgan, gardener to Major Scott, Reigate, who secured the chief prizes. Bouquets, wreaths, and table decorations occupied considerable space in one of the Pavilion apartments. Messrs. Miles, Balchin, W. Brown of Richmond, Surrey, and Seale being the principal prizetakers.

Fruit.—The most important class in the open section was that for a collection of twelve dishes of fruits, the prizes being the Ashbury silver cup, £2 10s., and £1 10s. The cup was well won by Mr. Rutland, gardener to the Duke of Richmond and Gordon, Goodwood, who had neat bunches of Black Alicante Grapes well coloured, *Violette Hâtive* Peaches very fine, Worcester Pearmain Apples fine colour, Dr. Hogg Melon good, Washington Plums well ripened, and Williams' Bon Chrétien Pears good, amongst several other satisfactory dishes. The second position was accorded to Mr. Fennell, gardener to E. Cazalet, Esq., Tonbridge, for a good Black Jamaica Pine Apple, Madresfield Court Grapes, fine; Jefferson Plums, Bellegarde Peaches, and Brunswick Figs also being of good quality. Mr. Goldsmith, gardener to Mrs. Lambert, Bletchingley, was third; and Mr. W. Johnston, gardener to the Marchioness of Camden, Bayham Abbey, was awarded an extra prize for a good collection. Black Grapes were fairly represented; Messrs. Johnston, Goldsmith; Osborn, Kay's nursery, Finchley; Mr. Bashford, gardener to Mrs. Douglas, Tunbridge Wells; and Mr. A. S. Hart, Dyke Road, were the prizetakers.

Peaches were well shown by Mr. Balchin, who had some good examples of Barrington; Mr. Duncan, of Warrham, and Mr. Fowler, gardener to Lady Willoughby, both staging fruits of the same variety very little inferior to the first. Fine Pears were contributed by Messrs. Rutland and Townshend, who carried off the chief prizes in the classes for culinary and dessert varieties. Among those from the former were some fine examples of Callebasse Grosse. Mr. Rutland also staged some of the best Apples.

Miscellaneous exhibits were contributed by several firms, especially by Messrs. Balchin and Miles. One of the best groups from the former was a number of plants of his new Mignonette, *Reseda odorata prolifera alba*, in first-rate condition; while from Mr. Miles a bright group of *Pelargonium West Brighton Gem* was very attractive. Messrs. Cheal & Son of Crawley had a number of new Melons, with boxes of cut flowers. Mr. J. Cattell, Westerham, Kent, staged a large collection of ornamental Gourds; and Messrs. Keynes & Co. staged several boxes of Dahlia blooms, including some fine new varieties, of which several were certificated, together with the following.

Pelargonium West Brighton Gem (Miles).—A variety which has been frequently referred to and described in these columns. On this occasion it was shown in excellent condition, the floriferousness of the plants and the brilliancy of the flowers being remarkable.

Aquilegia formosa variegata (Cattell).—A pretty form of Columbine with neat leaves blotched and splashed with yellow on green, and sometimes having a purplish shade. It has also been certificated at Sevenoaks this year, and is to be sent out next spring. In the specimens shown the variegation was clearly and brightly marked.

Dahlia Florence Brown (Keynes).—A Fancy variety with very symmetrical flowers of good depth. The ground colour is a peculiar buff shade, and is streaked with deep crimson.

Dahlia Joseph B. Service (Keynes).—A rich bright yellow self, of very good form and substance, but especially noteworthy the colour.

Dahlia Miss Batchelor (Keynes).—The bright scarlet Show variety

recently certificated at Kensington, and which was so much admired for its neatness and excellent form.

Melons Shepherd's Perfection and Crawley Paragon (Cheal & Son).—Two new Melons from Crawley, which have been recently shown at Kensington. The first is a large fruit with green, nearly white, flesh; the other is a scarlet-flesh variety that appears to net well.

As usual the Exhibition was held in the Pavilion and grounds, the attendance of visitors on the first day being very good, the Exhibition remaining open till a late hour, the rooms being lighted with gas and the marquee with Chinese lanterns, which produced a very beautiful effect.



WE have received from Mr. OLLERHEAD, gardener to Sir Henry Peek, Bart., a few berries of a NEW GRAPE, which bids well to supply the desideratum so long wanted of a white companion to the Black Hamburg. The two white Grapes upon which we have relied hitherto are Buckland Sweetwater and Foster's Seedling. The former is what may be called an early variety, and does not improve by hanging; the latter, though it hangs longer, is not remarkable for excellence of flavour. Mr. Ollerhead's seedling is rich in flavour, superior to Foster's Seedling, and judging from the toughness of the skin has all the character of a good keeping Grape.

— THE remarkably handsome specimen of *VALLOTA PURPUREA*, shown at the Brighton Exhibition last week by Mr. Gilbert, well indicated the decorative value of this fine old plant when in its best condition. The four dozen trusses each included from four to six fully expanded brightly coloured flowers, and there appeared to be many other trusses coming forward. The specimen was certainly the most attractive flowering plant in the Exhibition, and was very creditable to the grower.

— MR. L. MITCHAM sends us a dish of CANADIAN WONDER BEAN GROWN IN LONDON, as his employer thinks they are worthy of notice. They are not only "worthy of notice," but of high commendation, as the pods are from 8 to 9 inches long, fleshy and crisp, and they show how admirably adapted Kidney Beans are for cultivating in town gardens.

— A CORRESPONDENT of "Vick's Illustrated Magazine" contributes the following upon COLOURING WHITE FLOWERS, which we give without comment—"A very pretty experiment is performed by putting the stem of a freshly cut Tuberose, or other white flower, into diluted scarlet ink for a short time. The liquid will be drawn up into the veins, colouring them in a very pleasant manner. It is also instructive, showing whether a plant is net-veined or paralleled-veined. A Tuberose coloured not too highly makes a very pretty novelty."

— MR. GOODACRE of Elvaston Castle has sent us a remarkably fine bunch of VENN'S BLACK MUSCAT GRAPE. It is large, full, and of excellent form. Berries large, uniform, highly finished, and of superior flavour. We congratulate the cultivator on his success in growing this highly flavoured Grape, which is somewhat capricious, and not often seen in such good condition as in the example now before us.

— MR. BROWN of Birkwood Gardens, N.B., sends us the following account of a large Cockscomb—"At the annual Show of the Upperward of Lanarkshire Horticultural Society, held on August 29th, Mr. Henry Syme, gardener, Ridgemark, Lanark, staged two Cockscombs for competition, the largest measuring 45 inches from tip to tip, and 16 inches over the crown, its companion being only some 2 inches less. At the same Show he ex-

hibited six plants all measuring over 40 inches. The Cockseomb is of the "Empress" strain, sent out by the Messrs. Carter & Co."

— "It is surprising," writes "W. J. M." "in how many ways VALLOTAS can be utilised for decorative purposes, and how beautiful they are when well and generously cultivated. Two-year-old bulbs," our correspondent goes on to say, "are now producing four spikes, each bearing that number of flowers. The plants are in $4\frac{1}{2}$ -inch pots, and placed in vases for room decoration at Summerhill. Thus grown there is no better window plant than the Vallota."

— THE September number of the American "Gardeners' Monthly" gives a woodcut illustration of a new Lily under the name of *LILIUM LONGIFLORUM FLORIBUNDUM*. It is said to have been introduced by Messrs. Kift & Sons, West Chester, and is thus described—"The flowers and foliage indicate that it has a close relationship to the form of *L. longiflorum*, recently named *L. Harrisii*. The difference is, that while that seems to produce flowers ranging from three to twelve on a stem, this one runs from that to fifty-two, the number on this one engraved. It is simply more floriferous than that one has been found to be. This arises of course from some fasciation of the stems, and its value will depend on the permanency of this fasciation. For our part we see no reason why such a character may not be permanent in plants raised from offsets, as Lilies are. If it prove so it will be an extremely valuable plant to the cut-flower grower."

— MR. WILLIAM FELL, of the firm of Messrs. W. Fell & Co., Hexham, states that he has lately seen at Hardreding, Haltwhistle, the seat of J. Armstrong, Esq., a SPIKE OF *LILIUM AURATUM* HAVING SEVENTY-FIVE FLOWERS. The stem is fasciated, and the flowers overlap each other and produce a singular effect. The gardener, Mr. Jackson, states the bulb has been in his possession for four years.

— MR. COWAN writes on POTATO CULTURE IN IRELAND:—"However small the Potato plots are, whether in fields or in vacant spots between the rocks on the mountain sides, the best is always made of the little patches. Cabbages are grown amongst the Potatoes at 15 to 20 feet from each other. These come in useful for the cows and do not interfere with the Potatoes in any way. Nearly all the Potatoes are grown on the 'lazy-bed' system, which is of great advantage in wet summers."

— IT is surprising that such an ornamental shrub as *EUONYMUS LATIFOLIUS*, which has been known in this country for about a century and a half, should have waited so many years to receive the honorary distinction of a certificate from the Royal Horticultural Society. Many must have been pleased with the recognition the shrub received on the occasion of the last meeting, when specimens were shown by the two firms—Messrs. Veitch, Chelsea, and W. Paul & Son of Waltham Cross. Nearly forty years ago Loudon wrote respecting it as follows—"In British gardens this form, much the handsomest species of the genus from its broad shining leaves and its large red pendulous fruits with orange-coloured seeds, which when the capsules open are suspended from the cells somewhat in the manner that the seeds of the Magnolias hang from their strobils. Even the wood of this species during winter is much handsomer than that of any other, the branches being regularly divaricate, with a clear bark of a reddish green, and with long pointed dark brown buds, by which alone this species may be distinguished from the others."

— A GUERNSEY correspondent sends us flower spikes of the peculiar little Orchid *PHOLIDOTA IMBRICATA*, which was described some time ago in this Journal as follows:—"The species is a native of various parts of India, in the same mountainous districts where *P. pallida* abounds—viz., Sylhet, Chittagong, &c.,

where it is found growing on the stems and branches of trees. The flowers are small, of a yellowish tinge, and are produced in dense, pendulous, slender flattened spikes, each flower being subtended by a small, brownish, acute bract, from which character the specific name is derived. The appearance of these spikes is suggestive of the *Dendrochilums*, but the flowers are devoid of the fragrance that distinguish those charming little plants. There has been some confusion in reference to *P. imbricata* and *P. pallida*, for the latter was figured and described as the former in vol. xxi. of the "Botanical Register," but the mistake was subsequently corrected, and the one originally described was named *P. pallida* from its flowers being whitish. There are also other differences between the species which are patent to the most cursory examination; for instance, the bracts in *P. pallida* are blunt, while they are acute in *P. imbricata*, and the spikes of the former are loose, whereas in the latter they are dense. The species under consideration has also the reputation of being more easily cultivated than the other."

— AT the annual Show of the Royal Manchester, Liverpool, and North Lancashire Agricultural Society, held at Blackburn last week, a silver medal was awarded to MR. J. MATTHEWS, of the Royal Pottery, Weston-super-Mare, for the best collection of vases. This is the third silver medal for his pottery Mr. Matthews has taken this year.

INTERNATIONAL POTATO EXHIBITION, CRYSTAL PALACE.—SEPT. 20TH AND 21ST.

IN the number and quality of the Potatoes shown the Exhibition of Tuesday and Wednesday last was unquestionably satisfactory, and though in scarcely any respect superior to that of last year, it was alike creditable to the exhibitors and the supporters of the Institution. Further, the occasion was rendered especially notable by the President, the Right Hon. the Lord Mayor of London, William McArthur, M.P., with the Sheriffs and several Aldermen, attending in state to open the Exhibition on Tuesday. His Lordship also subsequently presided at the luncheon held in the Marble Hall, when, in proposing the toast of success to the Potato Exhibition, he expressed high approval of the intentions of the promoters, and considered that the means they have adopted of encouraging Potato cultivation is likely to meet with much success.

Class A, for twenty-four varieties. Six prizes were offered, the first of ten guineas being given by Messrs. J. Carter & Co., High Holborn; the remaining five of seven guineas, five guineas, three guineas, two guineas, and one guinea, were given by the Crystal Palace Company. Thirteen collections were staged, all of good quality. The first prize was obtained by Mr. Ellington, West Row Gardens, Mildenhall, for a substantial collection of handsome even tubers, mostly of good size. The varieties were—Blanchard, Magnum Bonum, Rector of Woodstock, Bedford Prolific, Purple King, Bresee's Prolific, Trophy, Wiltshire Snowflake, Triumph, Schoolmaster, Beauty of Hebron, Covent Garden Perfection, Vicar of Lalcham, Woodstock Kidney, Grampian, Mammoth Pearl, Beauty of Kent, Porter's Excelsior, Manhattan, Pride of America, Matchless, International Kidney, Early King, and Jackson's White Kidney. The second prize was obtained by Mr. W. Kerr, Dargavel, Dumfries, with clean satisfactory tubers, the following varieties being especially noteworthy—Matchless, International, Brownell's Beauty, St. Patrick, Climax, Silver Skin, Grampian, Excelsior, Triumph, Bresee's Prolific, Early Ohio, White Seedling Kidney, and Trophy. Mr. J. Lye, gardener to the Hon. Mrs. Hay, Market Lavington, was third with a very creditable collection, the tubers being chiefly of moderate size and very clean. Bountiful, White Emperor, Ruby, Matchless, Porter's Excelsior, and Breadfruit were well shown. Mr. W. Finlay, Wroxton Abbey Garden, Banbury, was fourth; Mr. J. Millen, Hamstead Park Gardens, Newbury, was fifth; and Mr. H. Gribble, gardener to the Right Hon. Sir Richard Malins, Maidenhead, was sixth.

Class B, for eighteen varieties. This class was open only to gentlemen's gardeners, the awards being made by gardeners who were not competitors; the six prizes, varying from seven to one guinea, being given by Messrs. Sutton & Sons, Reading. The premier award was secured by Mr. J. Matthews, gardener to E. Twopenny, Esq., Sittingbourne, for even and creditable samples of Vicar of Lalcham, Early Goodrich, Magnum Bonum, Porter's Excelsior, Beauty of Hebron, Trophy, Reading Abbey, Woodstock Kidney, Schoolmaster, Manhattan, Holborn Favourite, Wiltshire Snowflake, Superior, Pride of America, Beauty of Kent, Pride of Ontario, Triumph, and Late

Rose. Mr. W. Crump, gardener to the Duke of Marlborough, Blenheim, was second with a collection very near the preceding in merit, his best dishes being King of Potatoes, Woodstock Kidney, Triumph, Webb's Surprise, Bedford Prolific, Edgecott Seedling, Garibaldi, and St. Patriek. Mr. J. Millen was third with neat even tubers, the best being Vicar of Laleham, Beauty of Kent, and Late Rose. Mr. James Lye secured the fourth position; Mr. W. Finlay, and Mr. J. Cooper, gardener to Col. Long, Saxmundham, being fifth and sixth.

Class C, for twelve dishes, distinct, English varieties. Six prizes were offered, the first of six guineas by Messrs. J. Carter & Co., the second of £4 10s. by Vice-President Mr. Alderman Hadley, the third of £3 10s. by Messrs. George Ure & Co., Bonnybridge, Scotland, and the fourth of £2 10s. by Messrs. Kerr & Fotheringham. The chief prize was secured by Mr. W. Ellington with a collection similar to that in class A, having good tubers of Beauty of Kent, Schoolmaster, Grampian, Vicar of Laleham, Magnum Bonum, Porter's Excelsior, Woodstock Kidney, Covent Garden Perfection, Model, Bedford Prolific, Blanchard, and Early King. Mr. W. Crump was second with fine tubers of Model, International, Radstock Beauty, Edgecott Seedling, and Porter's Excelsior. Mr. James Lye was third, Mr. John Reid fourth, Mr. James Matthews fifth, and Mr. W. Kerr sixth. There were eighteen collections, two being disqualified, one having nine American varieties.

Class D, for nine dishes of distinct American varieties. The first of the five prizes was offered by Messrs. B. R. Bliss & Sons, New York, the second by Vice-President James Abbiss, Esq., the third by Messrs. Barr & Sugden, Covent Garden, and the fourth by Mr. Ex-Sheriff Woollaton, London. Mr. William Finlay easily secured the leading prize with clean handsome tubers of Trophy, Beauty of Hebron, Manhattan, Pride of Ontario, American Purple, Matchless, Superior, Early Rose, and Snowflake. Mr. William Kerr was second with tubers of moderate size. Messrs. Lott & Hart, Whitehill Nursery, Faversham, were third; Mr. W. Sedge, gardener to the Rev. J. W. Mellor, Sittingbourne, fourth; and Mr. John Reid fifth. Fourteen collections were staged, one being disqualified for containing some varieties that were not American.

Class E, for six dishes, distinct varieties. Five prizes were offered, the first by the Vice-President Peter McKinlay, Esq., the second by Vice-President L. Fawell, Esq., and the third by William Holloway, Esq., St. Paul's Churchyard. The chief position was secured by Mr. W. Finlay with very satisfactory dishes of Salmon Kidney, McKinlay's Pride, Ley's Favourite, Model, American Purple, and Edgecott Seedling. The second prize was awarded to Mr. L. Stanton, Maidford, Towcester, for very large specimens of Mammoth Pearl, Centennial, Snowflake, Trophy, Schoolmaster, and White Elephant. Mr. F. Miller was third with smaller but neater examples, his Yorkshire Hero and Vicar of Laleham being good. Mr. W. Crump was fourth, and Mr. G. Bloxham, gardener to Sir P. Duncombe, Bart., Bletchley, fifth. Thirty-one collections were staged.

Class F, for three dishes of distinct new varieties not in commerce before 1880, including one dish of Matchless. The four prizes were presented by Messrs. Hooper & Co., Covent Garden. Mr. Richard Dean, Ranelagh Road, Ealing, was first with fine examples of Mr. Bresee, Matchless, Reading Hero. Mr. William Kerr was second with Adirondack, Matchless, and Queen of the Valley. Mr. F. Miller, gardener to J. F. Friend, Esq., Margate, was third with Reading Hero, Matchless, and Beauty of Kent; and Mr. John Reid, Ayr, N.B., was fourth with Adirondack, Pride of America, and Matchless, all staging very neat examples. There were nine entries.

Class G, for three dishes of white round varieties. The first prize was given by George Wright, Esq., Falkirk, and the other three by the Amies Chemical Manure Co., 75, Mark Lane. Mr. W. Kerr was first with Climax, Schoolmaster, and an unnamed variety, all very even and of moderate size. Mr. J. Matthews was second with Porter's Excelsior, Early Goodrich, and Schoolmaster. Mr. F. Miller was third with Devonshire Plum, Silver Skin, and Schoolmaster; and Mr. W. Ellington was fourth. There were eighteen collections.

Class H, for three dishes of coloured round varieties. The first prize was offered by Mr. Richard Dean, Ealing. The chief position was obtained by Mr. W. Ellington with Vicar of Laleham, Blanchard, and Triumph. Mr. W. Kerr followed with Grampian in the place of Blanchard, the other varieties being the same. Mr. F. Miller was third with similar varieties; and the fourth prize was obtained by Mr. Gribble. Twenty dishes were staged.

Class I, for three dishes of white kidney varieties, to include a dish of Wiltshire Snowflake. Four prizes were offered by Messrs. Daniels Bros., Norwich. Mr. Richard Dean was adjudged the first position for good dishes of Advance, Pride of America, and Wiltshire Snowflake. Mr. F. Miller was second with Wiltshire Snowflake, Woodstock Kidney, and Yorkshire Hero. Mr. T. Pickworth, Loughborough, followed with Lady Gordon, Wiltshire Snowflake, and International. Mr. J. Wormleighton, Guilsborough, Northampton, took the fourth position with Daniels' Advance and Wormleighton's Seedling.

Class K, for three dishes of coloured kidney varieties, the first prize was given by Messrs. Harrison & Sons, Leicester. Mr. W. Kerr was first with Trophy, Brownell's Emperor, and an unnamed variety resembling American Purple; Mr. J. Matthews second with Beauty of Hebron, Trophy, and Superior; Mr. W. Ellington third with Purple King, Beauty of Hebron, and Trophy; and Mr. T. H. Hill, gardener to A. W. R. Brise, Esq., Witham, Essex, fourth with similar varieties. Fifteen entries.

Class L, for the best dish of Suttons' Magnum Bonum, in which growers for sale could not compete, Messrs. Sutton & Sons giving the four prizes. Mr. B. West, Nuneham, Oxford, was first; Mr. Charles Ross, gardener to C. Eyre, Esq., Newbury, second; Mr. S. Cornish, gardener to J. Abbiss, Esq., Enfield, third; and Mr. J. Millen fourth, all staging good samples of the variety. There were twenty-two dishes.

Class M, for the best dish of Schoolmaster, Messrs. Webb & Sons, Wordsley, Stourbridge, offering the four prizes, Messrs. G. Bloxham, L. Stanton, W. Ellington, and J. Millen were the prizetakers in that order. Thirty dishes were staged.

Class N, for the best dish of Suttons' Woodstock Kidney. In this and the two following classes Messrs. Sutton contributed all the prizes. Messrs. L. Stanton, F. Millen, C. W. Howard, Bridge, Canterbury, and W. Finlay secured the prizes in the order named, ten dishes being staged.

Class O, for the best dish of Reading Abbey, Messrs. J. Millen, W. Finlay, J. Matthews, and J. C. Ross were the prizetakers among fifteen exhibitors.

Class P, for the best dish of Reading Hero, Messrs. J. Millen, F. Miller; S. Haines, gardener to Earl Radnor, Highworth; and James Lye were the successful exhibitors in the order named, fifteen dishes being contributed.

Four classes were provided for nine varieties, a separate dish of each being required to permit the Judges testing the respective qualities of the varieties when cooked. Messrs. John Laing & Co., Forest Hill, and Messrs. Hooper & Co. conjointly offered a prize of £1 for the best dish or variety in each of the classes where a certificate had been awarded. A number of dishes were staged, but as the judging was deferred to a late hour on Wednesday we were unable to obtain the awards.

A novel feature of the Exhibition was the collection shown by Mr. Shirley Hibberd, comprising forty dishes, each dish representing the exact total produce of one root, save only that diseased tubers had been thrown out. These were grown on a loam of average quality without manure; they were planted April 22nd, and lifted (for the most part unripe) September 12th. The principal object in thus presenting them was to give practical illustrations of the relative productiveness of the several sorts:—Farren's Kidney, a white handsome variety of excellent quality; total weight of one root 6 lbs. Collins's Kidney, a white sort of moderate quality, 2 lbs. 3 ozs. Carters' Silver Skin, a neat white round of excellent quality, 6 lbs. Holborn Favourite, a handsome white round, 4 lbs. 2 ozs. American Purple, a smallish and a very pretty purple kidney, 2 lbs. 7 ozs. American Purple, a dish of the same consisting of the produce of three roots grown in pure coal ashes: an ugly sample, total weight of three roots, 2 lbs. 1 oz., or 11 ozs. each root. Fenn's Bountiful, a pretty red kidney of good quality, 2 lbs. 7 ozs. Suttons' Reading Hero, a white round of intermediate character, quality excellent, 3 lbs. Fenn's Seedling No. 1, a very neat white round; nice nutty flavour, 4 lbs. 2 ozs. The Queen, a neat smallish round white of fine quality, 4 lbs. 5 ozs. Woodstock Kidney, a white variety of the finest quality, requiring a lighter soil than this sample was grown in, 2 lbs. Fenn's No. 6, a handsome white round of the finest quality, 5 lbs. Fillbasket, a pretty white round, 3 lbs. 6 ozs. Rev. C. Radclyffe, a neat white round of fine quality, 2 lbs. 7 ozs. Sunrise, a neat white round, 3 lbs. White Elephant, large, long, coarse; better than Chardon for cattle feed, 9 lbs. 12 ozs. Extra Early Peach Blow, white round, with blush of pale pink, 4 lbs. 12 ozs. Masterpiece, white round, long and flat, 2 lbs. 2 ozs. Wiltshire Snowflake, a handsome white round, quality fine; too many chats, 3 lbs. 9 ozs. Mammoth Pearl, an ugly white round of poor quality, 3 lbs. 2 ozs. St. Patrick, a white kidney of good quality; the sample shown was finger-shaped and twisted, but very bright, 4 lbs. 8 ozs. Beauty of Norfolk, a very fine white kidney, 7 lbs. 5 ozs. White Star, a handsome kidney of fine quality and a good keeper; the sample shown was not first-rate. Mr. Hibberd reporting that it needs a lighter soil than it was grown in, 4 lbs. Armstrong's Prolific, an ugly white round, of no quality, 2 lbs. 12 ozs. Peerless Rose, a small red kidney suitable for exhibition, quality good, 3 lbs. Surrey Gate Post, a finger-shaped white kidney of good quality, 2 lbs. 6 ozs. Advancer, a pebble-shaped white of good quality, 4 lbs. 3 ozs. Pink Flounder, an ugly oblong root, of a pale pink colour, 7 lbs. Queen of the Valley, a coloured kidney of good quality, 5 lbs. 8 ozs. Queen of the Valley, another stool of the same, grown in lime rubbish, 4 lbs. 1 oz. Victoria Regent, a smallish round white, early and good, 2 lbs. 12 ozs. Pink Pyramid, an ugly oblong root of a pale pink colour, 3 lbs. 8 ozs. Pink Pointer, a neat elliptical kidney of a tawny pink colour, deep pink at nose end, 2 lbs. 14 ozs. Pink Domino, a pink kidney of good quality, 3 lbs. Daniels' Silver Skin, a neat white round, 4 lbs. 8 ozs. Handsome Round, a smallish white of fair quality, 2 lbs. 12 ozs. Wormleighton's Seedling has not made a good crop at Stoke Newington, and was lifted too early, 3 lbs. Improved Shaw, an early white round of good quality, but rather wanting in size, 3 lbs. 2 ozs. Johnston's Downshire has never been a good cropper at Stoke Newington; the sample shown was wanting in size, 2 lbs. 14 ozs.

The miscellaneous exhibits were very numerous, large collections of Potatoes being contributed by Messrs. Sutton & Sons of Reading; Carter & Co., High Holborn; Harrison & Son, Leicester; Webb and Son, Stourbridge; Lee & Son, Hammersmith; and Hooper & Co., Covent Garden, many varieties being represented by heaps of considerable dimensions. Mr. Robert Fenn of Sulhamstead sent about

thirty dishes of varieties raised by himself, several being entered in the classes for new varieties. A portion of the trial collection of Potatoes at the Royal Horticultural Society's Gardens, Chiswick, comprising 120 varieties, also formed a feature of much interest. Messrs. J. Veitch & Sons, Chelsea, staged about two hundred dishes of Apples and Pears, the former being remarkably fine. Messrs. W. Paul & Son, Waltham Cross, also had a similarly extensive collection of Apples and Pears, with six boxes of Rose blooms very fresh and bright. Mr. R. B. Cant of Colechester sent three boxes of Roses, and Messrs. H. Cannell & Son, Swanley, had several handsome collections of Dahlias and Verbenas, which brightened the appearance of the tables very pleasingly.

HONG KONG.

(Continued from page 182.)

OF that small portion of Victoria which stands on the limited strip of level soil between the spurs of the hills and the water.

Queen's Road is the main artery; it is, in fact, the longest and widest thoroughfare, extending from under the Peak almost to the Happy Valley, a distance of about three miles. It begins in the lower quarters of the town as Queen's Road East, and runs a somewhat winding course through the great business centre, where are the superior class of Chinese shops, the European stores, the courts, the clubs, the hotels, and the piazzas, till it reaches the City Hall and Beaconsfield Arcade. Here between the cricket and parade grounds, and directly under the cathedral, on a fresh morning in November or a moonlight night somewhat earlier in the season, Hong Kong appears to perhaps the greatest advantage. Glittering in the sunlight or gleaming softly in the moonlight are the elegant City Hall, Beaconsfield Arcade, and cathedral, toned down in a setting of the freshest sward and avenues of Banyan trees, between which on one side can be seen the rippling surface of the ship-studded harbour, while on the other towers up the heavy lowering mass of the sombre green Peak. The *Graphic*

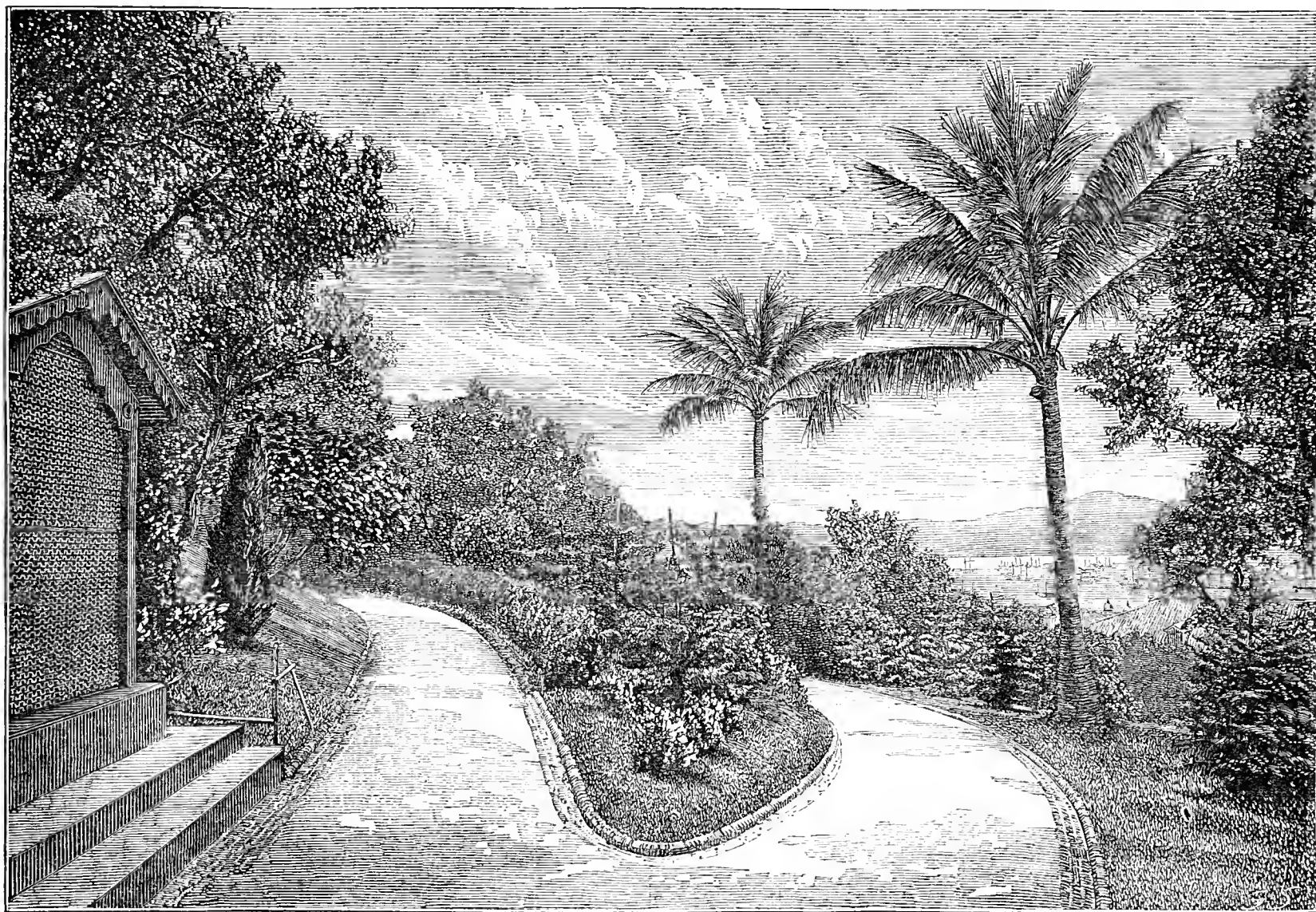


Fig. 45.—VIEW IN THE GARDENS AT HONG KONG.

last January published some so-called illustrations of this, which give but a very poor idea of a scene that would have driven some of our poets who have raved about the beauties of the Italian cities into a state of absolute speechlessness could they have extended their experiences thus far.

But not less beautiful in their way, though more confined in their view, are the winding walks which conduct the visitor from the cathedral up the face of the hills to the more elevated roads of the town and to the ornamental grounds of the public gardens and Government House. These, like the Queen's Road west of the City Hall to the Happy Valley, are planted and overshadowed with well-grown specimens of the *Ficus retusa*, which has been found to be the tree that, while combining the joint qualities of quick growth with plentiful shade, thrives on the granitic soil of the roads in Victoria; also in places are to be seen specimens of the *Pinus sinensis*, a somewhat scraggy untidy tree of its class, but which has been found to take kindly to the soil of Hong Kong and helps to add to the garment of vegetation that is every year

creeping more thickly over the once bare face of the hills. The greatest efforts are being made by the Government to promote this object, and for that purpose it procured some nine years ago, on the advice of Sir Joseph Hooker, the services of Mr. Charles Ford, a Yorkshireman, who has since 1872 been installed at Hong Kong as curator of the gardens and manager of the department of afforestation. To this gentleman I must express my indebtedness for much information, and also for the remarks on the arboriculture and botany of Hong Kong. When Mr. Ford arrived there was everything to be done towards reclaiming the foot hills from their condition of bareness, and for some years progress was not so rapid as Mr. Ford could have wished, in consequence of some conflict of individual opinions in the matter. Until 1877 some sixty thousand saplings had only been planted, a large percentage of which died. Now, however, Mr. Ford finds himself with ten different nurseries in Hong Kong and Kowloon, occupying in all about twenty acres, from whence he last year drew 270,000 saplings, which he planted along the hills and in various parts of the

town, while this year he expects to follow with 250,000 more. The tree used for the foot hills is mainly *Pinus sinensis*, and *Ficus retusa* for the roads and streets. Among the latter, however, Mr. Ford has determined to introduce more variety, and has set out with others *Camphora officinarum*, *Swietenia Mahogani*, *Quercus Harlandii*, and *Ailantus nobilis*. He is also making free use of the different varieties of the Hong Kong Oak, the Tallow Tree, the *Eucalypti*, and *Pinus Massoniana*.

In approaching the gardens from any direction you cannot help being struck with the clean solid nature of the walks over which the flickering shadows of the Banyan leaves are playing. They are of concrete, with gutters on each side, and altogether form kind of watercourses along which the water after a swamping rain runs with almost as much ease and quickness as it does off a duck's back, away down into the harbour. The cleanliness and dryness of its roads is one of the remarkable features of Hong Kong. Within a quarter of an hour of a deluge ceasing you can walk out dry foot, and, looking up at the hills above your head, see little silvery streams tumbling down in all directions through the town, pursuing their appointed channels to the sea. It forms quite a strange blending of wild highland with the formal grandeur of urban scenery.

Just outside the eastern gate of the gardens a road, called Kennedy Road branches away to the left, winding round the spurs of the hills at a height of some 200 feet above the harbour, and continuing for a distance of about two miles. It is the favourite promenade of the Hong Kongers, and they may be seen there every afternoon—ladies with their chairs, and coolies following them; and gentlemen without these walking and talking, or else sitting enjoying the contemplation of the hospital three-deckers, the turret ships, the ironclads, the great ocean-going steamers, and the swarm of ships and junks, sampans, and rowing boats below.

The gardens are not so remarkable for their size as they are for their neatness and finish, and for the fact that they exist at all. On looking up from the harbour below, it seems hardly credible that there should be so much space devoted to ornamental grounds and winding promenades as there is both in and around Government House and the gardens above it. Altogether the ornamental grounds do not exceed twenty-four acres, some six of which lie around Government House. The remainder is divided into two portions, the larger being situated almost directly over Government House, and the other lying away a little to the west with the road to the Peak between. This latter is known as the Palm Garden, and differs from the eastern portion in being smaller and occupying one level. In it are planted varieties of the *Aralia*, *Coffea*, *Canna*, *Cycas*, *Calamus*, *Cocos*, *Areca*, *Seaforthia*, and *Phoenix*, which, though many of them are still young, form as a whole a very pleasing, secluded, and romantic resort. This is particularly the case at the western corner, where there is an outlet by a balustraded path which debouches upon the ascent leading from the Caine Road to the highest residential road in Victoria, known as the Robinson Road. From the middle of this path you look down upon a mountain torrent's rocky bed spanned by a stone bridge, under which after rain the water will be foaming, while around you, behind, before, and to the left, are moss-encrusted rocks peeping through a curtain of dripping drooping foliage. Here you may sit so as to obtain a view into the Palm Garden, and there, in contemplation of that vista and lulled by the sound of rushing and dropping water, you may fancy yourself in that Elysium land so faintly foreshadowed by Lalla Rookh and the Koran.

The main portion of the Gardens is arranged in terraces with a broad walk running down the middle of them, from which smaller ones strike off in every direction. Conspicuous round its outskirts are specimens of *Cryptomeria japonica*, *Araucaria excelsa*, *Cupressus Lawsoniana*, Oaks, and Banyans. Here and there a somewhat indifferent-looking *Musa* rears its head, with *Thuja*s and an occasional *Magnolia*. The flower beds are very neatly arranged in the ordinary ribbon-border style of gardening, the stock materials being apparently much the same as those employed at home. In one particular spot are confined some kangaroos, emus, and water birds, all of which afford considerable amusement to the wondering crowd of blue-robed pig-tailed Chinese and to the members of the convention of European children, who, with their ugly Chinese "amahs" or nurses, congregate here every afternoon when the intense heat and glare of the day have begun to decline. On Sundays the company of visitors is augmented by the presence of members of the Eurasian (or half-breed) *jeunesse dorée*. These combine as a rule much of the large frame, aquiline features, and independent bearing of their European fathers with the soft, suave, inscrutable impassiveness of their Chinese mothers. Many of them have quite an elegant bearing, and in their long

white tunics falling far below the knees have often a not unstriking resemblance to Roman youths.—A WANDERER.

(To be continued.)

FRUIT NOTES.

THE fruit crop here is better than it was in the two preceding years. The supply of Apples is good. Most of the orchard as well as bush and pyramid-pruned trees have borne fruit abundantly. One of the best of Apples, Ribston Pippin, is bearing well, and an orchard tree of the Golden Pippin has a good crop of fruit. Wellington, Beauty of Kent, Cox's Orange Pippin, Norfolk Beefing, Striped Beefing, Dutch Codlin, Keswick Codlin, Alfriston, Holland Pippin, Lord Suffield, Hawthornden, King of the Pippins, Leydon Pippin, Nonsuch, Nonpareil, and Baldwin have all full crops. This last-named Apple has excellent keeping qualities, and it also forms plenty of fruit spurs. A large handsome culinary Apple not generally known is Pott's Seedling. This year it is particularly fine. A trained pyramid, 8 feet in height and the same in diameter at its base, is bearing a fine crop of large Apples. It is a vigorous grower, and is worth a trial.

The following Pears have full crops, the first to ripen being Doyenné d'Été, an excellent little Pear, and in season about three weeks if two gatherings are made. Then followed the Lammas, a medium-sized Pear, ripening about mid-August, but in quality it is not good. Jargonelle, ripening about the same time on a south wall, was of superior flavour. The next to ripen was Beurré Giffard, a small but delicious Pear. Williams' Bon Chrétien followed, and has fruited well, particularly against a south aspect. It, however, makes a good orchard tree, and, as is generally known, it is one of the best Pears in its season. Other varieties that have good crops are Louise Bonne of Jersey, Passe Colmar, Duchesse d'Angoulême, Beurré Bose, Autumn Bergamot, which makes a good orchard tree, and ripens in favourable seasons in October, Crasanne, Marie Louise, Beurré Diel, Beurré Rance, very full, Easter Beurré, and Catillac, the last-named being an excellent baking variety.

Plums are a very partial crop; Jefferson's, Kirke's, Green Gage, Pond's Seedling, Blue Impératrice, Coe's Golden Drop, Magnum Bonum, Yellow Orleans, Victoria, and Early Prolific being represented by few fruits, but Blue Orleans, Reine Claude Violette, and Washington are very full and heavy. The Prune Damson is also good, and should be more grown than it is. The fruit is longer and a different shape from the ordinary round Damson. It is also more constant in bearing.

Bush fruits of all kinds have been good, Strawberries and Raspberries plentiful, and Nut trees are bearing well. Cherries have not been good, except the Morello, and that has borne heavily. Apricots have been a fair average, the large Early Peach, Roman, and Moor Park being good. Breda had a good crop, but the fruit is so small that it is hardly worth growing. Peaches and Nectarines have a very fair crop, but the severe winters and cold springs of the last few years, together with the wet dull summers, have so crippled the trees that a large crop cannot be expected, and the damp sunless weather of the last few weeks is not favourable for their ripening, the flavour being deficient. The soil all the above are growing in is a deep loam resting on gravel.—A. HARDING, *Orton Hall*.

THE ARRANGEMENT OF CUT FLOWERS.

(Continued from page 238.)

IN all large establishments where floral decoration is valued there should be a "flower room" especially devoted to the work. It should contain a table close to the window, another large table or two, a sink with a water tap, a large lofty eupboard with plenty of broad shelves, and a broad shelf or two along any convenient part of the walls. The window table should have a drawer for scissors, knives, wire, string, dusters, cotton wool, a packet of gum arabic, and a bundle of flower sticks. Some white sand, charcoal, and moss should also be kept in boxes under one of the tables, care being taken to pass the sand through a fine sieve before it is put in the box, and there should be a large iron spoon for placing the sand into the flower stands. A small piece of charcoal is placed in every vase to keep the water sweet. A single drop of gum dissolved in water and allowed to fall carefully in the centre of a flower prevents its shedding its petals; it is not often that this has to be done, but it is worth knowing when flowers become scarce. A set of water jugs, a very small waterpot with a finely perforated rose for moistening sand, a sponge and set of brushes for cleaning vases, and a clock, renders our list of the flower-room furniture complete.

Flower stands, vases, and china flower pots are kept in the

cupboard and upon the wall shelves. Perhaps there are few things more difficult than the selection of these indispensable adjuncts to floral decoration by the uninitiated; so varied are the forms and so charming the colours set forth in tempting array at the china shop, that even experienced hands are not unfrequently led to purchase articles that prove unsuitable for a given purpose. Coloured flower stands should if possible always be avoided, for if they are used flowers must be chosen to harmonise with them, and so our selection would always be unduly restricted. White stands are of course admissible; but the most useful are undoubtedly those of transparent glass, which, although colourless, yet when filled with clear water impart an air of brightness that mingles most pleasantly with the varied charms of the flowers. Of all forms fish globes are the most useful for the dinner table, and the flower-room cupboard should contain a complete set of them, consisting of a dozen of each of the larger sizes and five or six dozen of each of the smaller ones downward to those that will not contain more water than a teacup. A single globe of the largest size answers admirably for the centre of a circular table, just as three or more do for a long table. The smaller sizes all prove useful in turn, being used either singly in circles around the large ones, or in groups in a variety of ways. My meaning will perhaps be most readily understood by those whose resources are frequently severely taxed to impart a distinct character to a series of consecutive table decorations. A considerable number of circular wooden blocks of various thicknesses and diameters to suit the different globes, all of them covered with dark crimson plush, are used to elevate the globes above the tablecloth, salvers of glass mirrors set in silver being sometimes used for the large central globes.

Of other table stands what are known as Marsh stands are still used in the plain forms in which they were originally brought before the public. Various modifications have found favour according to the promptings of individual taste or fancy; a favourite one of medium size, consisting of a bottom saucer for sand, from the centre of which springs a single water vase, is very useful. Glass baskets are also useful; so, too, are the small slender glass vases suitable for a single Rose, or two or three trusses of smaller flowers, of which mention was made on page 237. They are very elegant and are usually frosted. Iridescent and crackled glass vases are very beautiful—so beautiful that they are usually found in sitting-rooms, but there should be one or two sets for dinner-table work, and they are not expensive. For corridors, vestibules, landings of wide roomy stairs, and various nooks and corners, gigantic china vases 2 or 3 feet high are best for standing upon the floor; but if there are tables or brackets, then there is nothing better than large china bowls filled if possible with fragrant flowers. What is more liked than a bowl of Sweet Pea blossom, or Mignonne, Honeysuckle, Lily of the Valley, Harebell, Roses, Violets, or Primroses? All are welcomed in their seasons. Depend upon it, it is not the costly Orchid or other rare flowers requiring expensive glass structures for their culture that are most often in favour even in a palace. There is a craving for the “old-fashioned flowers” of our childhood, and only a selection of those of the most easy culture are needful to carry on the work of decoration well. Of Roses we cannot have too many, especially of Moss Roses, Damask, Cabbage, Gloire de Dijon, and Maréchal Niel. Let there be plenty of Sweet Peas—not small clumps, but long rows in succession throughout summer and autumn. I have now two rows, one on each side of a path some 200 feet long, just bursting into bloom, forming an avenue of sweetness and affording a bountiful supply of cut flowers. Anemones, Zinnias, Asters, Scabious, pink and white Mallow, Love-in-a-Mist, pink and white Canterbury Bells, Columbines, Cornflowers, Larkspurs, Lupins, Pinks, Carnations, Picotees, Myosotis are all highly valued for the rich supply of cut flowers which they afford, every one of which can be turned to account for decorative purposes.—EDWARD LUCKHURST.

THIS is a subject I have long been interested in as concerns gardeners. I believe it is a fact that a large number have little taste, because taste is not cultivated. I have often had flowers provided me by gardeners who have ample resources, and have often received only such that could be bought for a trifle in the market. This is what I entirely object to. If, for instance, I send flowers to a friend I want a selection chiefly of those not to be obtained by that friend as he goes along the street. All these flowers are no doubt beautiful in themselves, and I merely wish to instance the limitation of taste. The flowers are often acceptable enough; but what disappoints me so much is, that some of the best kinds for the purpose are entirely omitted, and the duty of supply is considered accomplished if the selection is limited to a few bright colours with a few sprays of *Adiantum cuneatum*, as if there were no other pretty foliage in existence. Again, if

you have flowers sent in at intervals the very same kinds are sent in over and over again, while there are hosts of others to provide a change—perhaps something particularly good; but all these are passed over, apparently because they do not belong to a regular set. To receive anything in season outside the houses or flower garden is too often out of the question.

My opinion is that many gardeners have no proper knowledge of the floral wealth of this country. They do not, for instance, as a rule acquaint themselves with herbaceous plants. Lately these hardy flowers have received a slight from someone actually condemning them on the strength—rather weak, I imagine—of some seen where they have no reputation for cultivating them. I say cultivating them, because while common they are very rarely cultivated, and less often perhaps intelligently selected. The expression “herbaceous plants” might well be given up, because it has become like a red rag to one sex of a bovine species, and often appears to prevent interest in the class, which has got a bad name and is hung without trial. We often find that those who strongly condemn herbaceous plants do actually cultivate a number of them under some other head, quite forgetting what they are. By the expression is too often understood only the bad and useless.

If I am asked why there is so little taste among gardeners, I answer that few have any artistic education. Some are of course endowed with natural taste, but others can acquire taste in no other way than by systematic study. How few there are who undertake this! It is, indeed, extremely important, because the class whom gardeners serve have of late years greatly grown in taste, and if gardeners are to interest their employers they must be able to show the beauties of their outdoor establishments. I have met with many well able to appreciate what they cannot obtain, except by asking, from the average gardener of the present day. Turning to Mr. Luckhurst's article which has excited these remarks I find that he has treated well of floral arrangement, but how can anyone arrange tastefully without an appreciation of the materials at command?—R. I. L.

A WEEK IN LONDON.

TRAVELLING through the country I found little to interest me until I reached Derbyshire, when I was much pleased with the grand scenery in that county. I have never travelled before on the midland route from Manchester to London, and I never before found so much of Nature's handiwork to interest and render a weary railway journey attractive. This county was beautiful, with frequent fields of grain, and large towering hills rising to a great height, and the sides covered with firs. The county of Derby appears from what I saw of it to be a fine field in which the landscape gardener may study Nature. After leaving this county I found but little of interest further on the journey until the great metropolis was reached. It was then night, and dark, and when passing over Blackfriars Bridge the Thames Embankment was pointed out to me, and so beautiful it looked, illuminated with the electric light, that I was tempted to go and see it again. The young trees are doing well, and a good authority informed me that these trees retain their foliage longer than any other trees in London. I have certainly never seen anything to equal the Embankment in any provincial town. London is much different from what many expect to find it, and I must say I was rather surprised to see the thousands of trees, young and old, growing in the streets. At every turn, in every street in the suburbs, trees abound. The Plane (*Platanus orientalis*) appears to thrive well, grows rapidly, and retains its fine bold green foliage until frosts occur. Limes are also largely planted, but the foliage was almost gone, and the trees presented quite an autumnal appearance. It would be interesting to know how the Plane would do in the northern counties. If it is sufficiently hardy it would prove a valuable tree for the neighbourhood of smoky towns. The Robinia also grows luxuriantly in the environs of London. The various roads and streets present quite a different appearance from those round any provincial town I have seen. What with the trees and the little garden in front of nearly every house, and the houses festooned and draped with Virginian Creepers, quite a lively and country-like appearance is produced, and never before have I seen this fine old creeper grown so largely and effectively. The enthusiasm that evidently prevails for flowers is very striking, and every small garden is decorated with flowering and other plants; this no doubt is due in a large measure to the flowers and flower-garden decorations in the parks. I wonder why provincial towns do not follow the example of London, and adorn their parks for the enjoyment of the public. I have visited many, and scarcely ever is a flower to be seen. A friend told me a short time ago he had been visiting Liverpool and one of its parks, which was one of

the most beautiful he had ever seen, but after walking through the principal parts could scarcely find any flowers.

The Scarlet Runner Bean attracted my attention. Every occupant of the houses evidently devotes a portion of their small garden to the growth of these Beans. They really look grand as you travel by rail through the suburbs. Not only are they ornamental but useful, and the plants are carrying a heavy crop of beans this season. I have just noted two or three things that attracted most attention, but intend giving a few notes of the parks and places of horticultural interest. The first being the

CRYSTAL PALACE.

I must admit I went with some curiosity to see this renowned place. I had formed some gigantic idea that it would be superb, far surpassing anything I had ever seen in the horticultural world. These ideas were grounded in my imagination from the glowing descriptions given from time to time in the gardening journals. The remarks of your correspondent Mr. Wm. Taylor, which were given in the Journal after a visit there, caused me to doubt whether my idea formed of the place would be realised. I thought his statement rather bold and sweeping, especially after the bestowal of so much praise; but according to my judgment it was the best and most correct description of the gardening at the Crystal Palace I have ever read. Certainly I saw a few good Tree Ferns and the fine old *Ruscus androgynus* growing luxuriantly. I was rather late in the season, for the bedding and the flowering plants had been much injured with the wet weather. The most showy beds in the grounds were composed of mixed double Zinnias, and they were very fine. Beds of *Phlox Drummondii* and mixed Verbenas were also showy. I thought of finding some fine carpet beds, but was disappointed. The carpet beds contained two or three neat designs; but in some beds too much *Alternanthera* was used, in others the *Iresine* and *Tagetes*, which were employed in the centre and for lines, had been too severely pinched to keep them in due bounds, and in consequence spoiled what would have otherwise been pretty beds. Viewing the bare terraces from the grounds they are in my opinion most unsightly. Would they not be better covered with Ivy or some other neat-growing climber? The next establishment visited was

HYDE PARK.

Numbers of young trees have been planted there of late years, and will, in a few more years, make a grand improvement to the Park. Being interested a little about herbaceous plants, since so much has been written in their favour lately, I watched eagerly the mixed borders for any especially good plant, but found nothing of any moment except *Anemone japonica* and *A. j. alba*, the next best plant being *Hydrangea paniculata*, a really grand plant, which should be grown in all gardens. The bedding had undoubtedly been very fine, but the flowering plants, especially the Pelargoniums, were much spoiled by the wet weather. The four most simple beds (circular) and yet the most conspicuous of all, were composed of *Gazania splendens* and *Iresine brilliantissima* mixed. The yellow flowers of the former contrasted admirably with the bright foliage of the latter. No doubt the old *Gazania*, which is seldom seen now, will become popular again for mixed beds. Another pretty mixed bed was composed of Pelargonium Verona, a fine gold-leaved variety with pink flowers, and *Iresine Lindeni*, edged with Cliveden Purple Pansies. Some beds composed of Pelargonium Ariosto, a variegated Ivy-leaf, and *Viola Blue Bell* were very attractive. Amongst the beds of Pelargoniums the two varieties that appeared to have stood the wet best were pinks Mrs. Holden and Lady Emily, which were very fine. The subtropical beds looked well, and are far superior to the beds of flowering plants for late summer decoration. Two beds were filled with Cannas in variety, with a variegated Abutilon, probably *A. nœvium maculatum*, with a few plants of *A. Boule de Neige* flowering very well, a row of *Centaurea candidissima* all round, next to this a row of *Lobelia*, and edged with *Echeveria secunda glauca*. Two other beds very similar were equal in point of merit, and only differed from the others in having a row of *Dracæna rutilans* and *Grevillea robusta* planted alternately and arranged between the Cannas and the *Centaureas*. It is not surprising that these subtropical beds are so much admired by the public.

Of carpet beds, one noticeable bed had for the centre *Echeveria metallica* surrounded with *Alternanthera magnifica*, which was raised above the rest of the bed, the edge of the raised portion being formed with a close even row of *Echeveria secunda glauca*, then a band of *Mentha Pulegium gibraltaria* with another row of *Echeverias*, then the golden *Alternanthera paronychioides aurea* dotted with *Pachyphytum bracteosum* and edged with *Echeverias* mixed with a little *Sedum glaucum*. Another bed which was very attractive had for a centre a single plant of *Echeveria metallica*

surrounded with *Alternanthera* and *Sedum acre elegans*, the lines being formed of *Echeverias*, and the remaining portion of the groundwork with *Mentha*, small patches of *Alternanthera*, and succulents. The next noticeable bed had a centre plant of *Centaurea candidissima*, the groundwork in the inner portion of the design being *Herniaria glabra*, a close-growing green plant. *Alternantheras* filled four small circles in this groundwork, which was edged with Golden Feather and a band of *Alternanthera*, the remaining groundwork being composed of *Cerastium tomentosum* with small triangular pieces of a small *Saxifraga* with single specimens of *Echeveria metallica* dotted in suitable positions.

The introduction of a number of succulents in the carpet beds was quite a noticeable feature, and considerably improved the beds, which otherwise would have presented a rather flat appearance. The carpet beds were by far the most attractive, and the beds of Pelargoniums had no chance of competing with them either for neatness, brightness, or beauty.—A COUNTRYMAN.

(To be continued.)

PLANTS FOR WINTER AND SPRING.

GROWING plants for winter and spring flowering, planted out either in pits or the open garden, is one of the simplest and most efficient modes of cultivating these throughout the summer. I have grown many plants thus for a number of years past, and always successfully. At the present time the plants should be lifted and potted. I place our stock, without exception as to kind, into as small pots as the roots can be forced into, the soil used being rich in manure. When potted the plants are all placed in a position out of doors, where they are perfectly shaded from the sun. They require very little water, no syringing, and do not lose a leaf. A month, or perhaps three weeks, after lifting the plants are housed; they are by that time slightly at home in the soil they are potted in, and can be subjected to heat as they may require it. If kept growing and forming roots we give them liquid manure about once in every ten days, but when kept cool for spring flowering they do not require it nearly so often.

Bouvardias, Cyclamens, Begonias, *Eupatorium Weinmannianum* are grown in frames during summer; *Deutzia gracilis*, *Solanum Capsicastrum*, *Calla æthiopica*, *Hoteia japonica* are grown in kitchen-garden borders; Chrysanthemums are also grown largely for transplanting into cool-house borders to afford flowers for cutting. Lily of the Valley, Azaleas of the mollis type, Rhododendrons, *Schizostylis coccinea*, Zonal Pelargoniums, and, in fact, almost all kinds of easy-grown plants, may be thus grown with little trouble and certain success.—R. P. BROTHERSTON.

PREPARING FOR WINTER.

(Continued from page 171.)

EARTHING-UP AND PROTECTING CELERY.—The former operation is undoubtedly one of the most important to be performed in the kitchen garden at this time of the year. Celery may be well grown—and there appears to be much that is very strong and very clean in the gardens of amateurs and cottagers this season—and yet be partially spoilt in the blanching. Some err in leaving their plants too long before commencing to earth them up; others go to the other extreme, and complete the operation before the plants are either strong enough or forward enough for the operation. In the first case a difficulty is often experienced in protecting the heart; and the leafstalks, owing to long exposure, become tough and strong-flavoured, and consequently but little besides the heart is really eatable. On the other hand, if earthed-up prematurely the growth is arrested, and the produce is of an inferior description accordingly.

I take special pains with the rows of Celery. It is my pride to see it turned out clean, straight, and solid, and it would be particularly annoying if the reverse should be the case simply because sufficient attention had not been paid to the earthing. Some urge, and to a certain extent rightly, that large heads of Celery should not be grown, simply because the hearts only are sent into the dining room; but, according to my experience, the stronger the plant the better will be the heart both in size and quality. Besides, few employers, I trust, expect their gardeners to grow Celery for their use only, and if some of the outer leaves are solid and well blanched they are eatable. At any rate, the owners of small gardens do not waste the greater part of well-grown Celery; and these I strongly advise not to smother up their rows of comparatively weakly plants from a desire to secure early produce. Of course in the majority of moderate-sized or large gardens Celery is now being lifted in good condition, and more is being gradually earthed-up in order to maintain the supply. Those in charge of these doubtless know as much about

Celery as I do; but there are others of lesser pretensions who do not, and for whose benefit I will briefly detail our mode of operations.

It must be borne in mind that the Celery is not erect-growing, as if left to itself in the open the outer leaves will gradually open out and assume a horizontal position, and will split or crack off when an attempt is made to bring them up to the position in which they are required to protect the heart. When, therefore, the plants are growing strongly, whether intended for early or late supplies, all suckers and the very smallest outer leaves are pulled off cleanly, and the first earth worked in around them to a depth of about 3 inches. This is either performed a few hours after a heavy rain, or, in the case of dry weather prevailing, after a heavy watering has been given. Where but little manure was dug into the trenches liquid manure should be freely used, or a good dressing of soot and lime, with a small portion of salt added, dusted along the rows prior to watering both at the first and second earthing. This mixture acts as a fertiliser, and also to a certain extent as a preventive of slugs and worms, which in most cases do much damage to the Celery. In about fourteen days another light earthing is given, care being taken not to be in advance of the inner leaves, and also not to unduly press in the outer stalks about them. Yet another earthing is performed, completing finally about three weeks before the Celery is required for use, or, in the case of the later supplies, whenever frost is imminent.

At the third earthing the soil is worked rather more closely and firmly about the leafstalks, which at the final operation are brought closely together and the soil worked round tightly with the hand, the ridge being rounded off so as to throw off the rains. It is not advisable to bury much of the foliage, and in order to preserve the heart from the soil it is a good practice to tie up the leafstalks with strips of matting slightly above the soil line, untying immediately after the earth has been applied. This I find preferable to holding by the hand. After the two first earthings especially, the drier and lighter the soil employed is the better, and for this reason dry weather should always be selected for the operation; and where the soil is naturally very stiff either lighter soil, sand, or coal ashes should be worked around the Celery, enclosing this with the stiffer soil. It is a difficult matter to protect the plants from slugs and snails. We are using soot and lime freely, but another season I hope to be able to thoroughly dress the ground with quicklime some time prior to digging the trenches.

Celery, as many of us know to our cost, is far from being bardy, and if the foliage is destroyed by frost the stalks soon decay. Various methods of protecting are resorted to, the simplest and best probably being two broad boards nailed together in the form of the letter V and inverted over the tops, removing them during favourable weather. Dry fern or bracken will here be used when required, and much may be done with rough litter and branches of evergreens.—W. IGGULDEN, *Marston*.

CLERODENDRON FRAGRANS.

THERE is no sweeter-scented, more floriferous, or more ornamental *Clerodendron* in our gardens than this. It is rarely the name is to be found in nurserymen's lists, nor do we see the plant often in gardens; and all this is very surprising, as it is one of the easiest plants to grow anyone could possess. In shape its leaves are not unlike those of the Vine, but they are rougher and thicker. In habit it is dwarf and branching, and the flowers are produced in *Ixora*-like clusters at the end of every shoot. It grows quickly and bears stopping well—so well, indeed, that it is a great advantage to stop it frequently, as the shoots which this readily produces soon bloom. One plant which we have been trying is now bearing its third crop of bloom since March last. This has been secured by cutting off the preceding blooms as soon as they were opened, and thereby causing the back buds to produce flowering shoots.

A rich compost is needed, and the temperature I have found best suited for it is that of a stove, but in summer I should think it would do well in any conservatory. As yet the flowers are each about the size of a sixpence, quite double, with very thick wax-like petals, pale pink in colour, and as strongly scented as a *Gardenia*, only their fragrance is suggestive of almonds. It is most easily increased by cuttings, which will root freely in a little bottom heat at any time of the year. Plants in flower may be had in any size pot. Handsome plants can be grown in 8-inch pots, and specimens fit for showing may be had in a few sizes larger.—M. M.

HYDRANGEA INVOLUCRATA VERA.

LIKE the *Cletbra* referred to in another column, this plant was flowering freely in the Antwerp nursery. It is totally distinct

from all others of the genus, and is decidedly ornamental both in foliage and flowers. The prevailing colour of the trusses is blue, but the expanded flowers are brighter. The plant is a native of Japan, and was introduced, named, and described by Siebold some years ago, but has for some reason or other remained scarce, and is seldom seen in gardens. The protecting involucreted bud is very remarkable, in this respect being totally dissimilar from all other *Hydrangeas*. The hardiness of this plant has also been established, as it has endured without the slightest injury the extreme severity of the last three winters, and has flowered freely



Fig. 46.—*Hydrangea involucrata vera*.

every year. It is of low and rather close growth, rarely exceeding 2 feet in height. A flower truss is produced by every growth, and is suitable for the margins of shrubberies or borders of hardy flowers.

LESSONS OF LIFE FOR YOUNG GARDENERS.

HAVING given the readers of the *Journal of Horticulture* a brief narrative of my life, I now come to notice some of the lessons learned by the way. This will be done with a view to guide and encourage young gardeners and others anxious to progress.

The occupation of gardening is honourable and respectable: to men of energy who have sympathy for what is natural and beautiful it is pleasurable and exalting. The pleasures derived from well-kept gardens and gardening pursuits are second to none, except those of religion and social life. Some young men have no tastes—no talents for gardening. Their natural instincts and desires tend in other directions. There is no accounting for the differences of taste and inclination. Circumstances and associations lead some young men to commence gardening who have no real love for it. A life of service and activity does not suit their notions of independence and self-gratification. Such men have a very hard and uphill battle to fight through life, for unless a love

for gardening be begotten in them in early life it will be hard work for them ever to advance on the high road to mediocrity.

It is quite otherwise with young men of energy who love gardening, and who are bent on their own advancement and elevation. All that such men need is a little encouragement and guidance. In our time we have known many young men of this kind who succeeded in raising themselves to positions of distinction, and some of them still rank among the aristocracy of their profession. With a view to encourage and assist the young readers of this Journal I ask the Editor to let me now call some of them to my side, so that I can talk to them in a semi-conversational style.

Young men, you have now commenced the battle of life, and you well know that you are surrounded by a world of busy activities—a world of buyers and sellers—a world of vice and virtue—a world in which the race is to the swift and the battle to the strong. In gardening, as in most occupations, it holds that "whatsoever a man soweth, that shall he also reap." This is a lesson of prime importance, and has a wide and general application. Young men like you have it in your power now to shape your own future to a very great extent—in other words, to act so that you can look hopefully forward to a happy and successful life. In all your efforts to advance remember that first-class men are scarce, second-rate men are plentiful, and that third and fourth-grade men are more plentiful still. There is now, and there has been for forty years, greater difficulty in finding first-class gardeners than there is in finding first-rate situations for such. Capable and accomplished gardeners, like good fruit, are in demand and seldom remain long in the market. Now look for a moment at the comforts of a gardener in a good situation. His wages are constant and certain; he has a free house, coals, milk, fruit, vegetables. In one of the situations I held I was allowed butter and game. At the age of twenty-seven I entered on my first head place, wages £70 a year; in my second place I had £80, third £84, and last one £90, and of course the usual perquisites; and though the places I filled were not the highest, their material comforts were great and satisfactory. And since I left service twenty-two years ago the wages of gardeners, both masters and journeymen, have risen considerably. These things are now mentioned for your encouragement and to stimulate you in aiming at excellence and success.

In coming to the question of education let me say that young gardeners cannot be too well educated, for education proper is uplifting in every sense—tending to make them more intelligent and better servants, fitting them for higher positions, giving them more self-respect with a distinct power to command the respect of both rich and poor around them. Gardeners have to meet and converse with the highest classes of society. Even the Queen herself has said that she prefers gardeners who can talk to her in a becoming manner. Those who have commenced a career of gardening with defective education should begin at once to improve themselves in this respect. To all such I would say. Do not delay, and never despair. A strong resolve followed by effort will overcome every difficulty and do the work.

"An egg before an eagle, a thought before a thing."

During the winter months gardeners have much time for reading and improvement, and if this time is not properly spent it will be worse than lost—worse than wasted. If the soil of our gardens be not properly cultivated and cropped we are certain to have a splendid crop of weeds.

As bread is the first consideration of man, the means by which it is to be earned should never be forgotten. A man's own business or profession should be his chief study. Young men, let nothing else go before gardening science and practice. But as all streets and byways of a city are in some way connected to the main or central thoroughfare, so all branches of science and scientific pursuits run into one another, and therefore you can never gain too much scientific knowledge, which expands the mind and gives to man a firmer grasp of his own business—a deeper penetration into and a greater power to explain the works of Nature around.

Perhaps you are aware that some people say there is a difference between "a thinking man" and "a man thinking," and they hold up "the man thinking" as the better of the two. You will likely enough do the same by-and-by. Two apprentice gardeners without instructions or experience were told to tie up some beds of Pinks. They obtained sticks and matting, and they had knives. The elder of them began finishing every plant as he went on. The other apprentice looked at his companion for a moment, using first a stick, then the matting, then the knife. He would not be fettered and embarrassed by a bundle of sticks; he stuck them all in the beds before he tied a plant, then obtained a piece of matting and finished his work before the other had done one-half of his.

On finding himself so far behind he said, "I see your way is the best." This simple story is representative of a thousand instances of men working without thinking. A young gardener "thinking" seeks and finds the easiest and speediest way of doing work; notices all that is being done around him, even from the erection of a pigstye to the erection of a mansion; and he desires to know the reason for everything done and the way of doing it. Young men of this stamp acting to the best of their ability speedily rise into distinction, commanding the respect of masters, overseers, and companions in toil. Men thinking and acting are men that can be safely entrusted with work and the superintendence of other men. Men thinking and energetic soon become men of independent thought, who stamp their own individuality on all they undertake, able to meet difficulties and pass through emergencies without fear; whereas men of slow thought and action are somewhat like sheep, which follow one another in tracks up the mountain side.

On going to a new place let your motto be "Full and Faithful Service." In serving your master well you serve yourself better: merits and meritorious conduct never remain secrets, and seldom go unrewarded. On visiting Chatsworth Gardens two years ago I took leave to ask Mr. Speed how he obtained his present situation. Mr. Speed replied by stating that his first head place was a small one in Nottinghamshire where he had twelve men under him, affording ample help to keep the place well. "I resolved to do everything well, and thus rear a mound of excellent gardening on which I could stand and be seen. The family here heard about me and engaged me to manage Chatsworth Gardens." I commend to your notice the example of Mr. Speed as one worth being imitated by all young gardeners. Gentlemen and ladies want their gardens well kept; they freely and ungrudgingly spend money to have them well kept and managed; if they are not well kept who is to be blamed? If gardens are not well managed they are a source of disappointment and annoyance to the employers. We all know this, and therefore nothing more need be said about it. For your own comfort and satisfaction, as well as for the pleasure and gratification of your employers, do your very best to have everything under your care in the highest state of health and best possible keeping. If you have not assistance enough to do everything well, respectfully tell your employer, and tell him at the best time and in a manner to make him see that you are intensely anxious to meet his wishes and have the gardens in good condition. All through life I have been often applied to for gardeners, and consulted by gentlemen about their gardeners, and almost always found them very reasonable, willing to encourage their servants, and very unwilling to part with good men.

Finding I have much to say yet I must make my remarks brief and pointed. While young men are journeymen they should guard themselves against the dangers of courting, for when young men begin to keep company with the opposite sex their books become less attractive, they come to a standstill in gardening and make no progress. In our time we have known very many young men who have made a good beginning and who had good prospects completely blighted for life by early courtship. How foolish it is for anybody to seek a bird before he has a cage ready for it! Head gardeners should never be on intimate terms with house servants, male or female, should know no secrets, and hear no whispering from anybody. The great business of life is to do right, to deal with everybody and everything honestly—never to battle against conscience. The man that goes wrong and wittingly does wrong lives in a wood full of shadows. In a verse of poetry which will close this letter young men will find a condensed encyclopædia of precautions against the mistakes and dangers of life.

"O mortal man, in every act beware,
For one false step may cause an age of care;
Ever thy credit keep, 'tis quickly gone;
Though gained by many actions, lost by one."

—A. PETTIGREW, *Bowdon*.



HARDY FRUIT GARDEN.

WHERE it is contemplated to plant new trees against walls or renew worn-out trees the borders should be made soon, to allow of their getting settled and the soil ameliorated before the time for

planting arrives. Under ordinary circumstances it is not necessary to do more than trench the ground—not, however, bringing up much bad soil, but stirring it so as to allow the water to pass through it freely and be conducted away by the drains, which must not be more distant than 15 feet apart, and should not be less than 3 feet deep, as it is not the water near the surface that wants carrying off, but that which, without the drains, would lodge in the subsoil. Light soils should have a liberal addition of strong fibrous loam, whilst those that are very stiff will be improved by adding an eighth part of old mortar rubbish. Such a course of preparation is mostly sufficient to secure success with bush, pyramid, espalier, and cordon trees, no manure being mixed with the soil but placed on the surface after the trees are planted. Ground intended for bush fruit, such as Gooseberries, Currants, Raspberries, &c., should, on the other hand, have a free application of manure, as there is little danger of their growing too freely to fruit satisfactorily. In forming borders for trees to be trained to walls it will be necessary, unless the soil is of a texture that cannot well be improved, to form proper borders, so as to secure the best results, and to not only form them, but to keep them exclusively for the trees. More than half the ills attending fruit trees against walls result from the cropping of the borders, and the consequent mutilation of and deep spread of the roots; the heavy manuring for the vegetable crops also induces luxuriant growth of the trees, which is unfavourable to fertility.

Half the height of a wall affords ample breadth of border for any fruit tree. It is not necessary to restrict the roots to that extent, but have a low 4½-inch wall at that distance from the main wall, and pigeon-holed so as to allow of the roots passing outside if requisite. Any tendency to over-luxuriance is readily stayed by annually or biennially taking out a trench and cutting the roots close to the low border wall, and this without interfering with the principal roots, or giving so great a check as often results from lifting. The soil where it is unsuitable for forming borders should be taken out to a depth of 3 feet, the base sloping from the wall outward not less than 1 inch in 12. About 3 inches of rubble should be spread in, and covered with a mixture of two parts of coarse sand or fine gravel to one of lime, thoroughly incorporated and brought to the consistency of thin mortar. This with a proper inclination will form a good bottom, being, in fact, a capital concrete. Allow it to harden, then place a drain longitudinally in the border and two-thirds its width from the wall, erecting the dwarf wall on the concrete. Put in 6 inches of rubble, coarsest at bottom, cover with a layer of turves grass side downwards, and fill-in with compost 9 inches higher than the intended level to allow for settling, the material being put on if possible somewhat dry and tolerably firm. The top 3 or 4 inches of a pasture where the soil is a medium-textured loam, inclined to be strong rather than light, adding a tenth of old mortar rubbish, or in lieu thereof chalk in pieces up to the size of an egg, with a fortieth part of half-inch bones, and if the loam be deficient of grit add a tenth of road scrapings, the whole to be thoroughly incorporated, will suit every description of fruit tree, and with proper surface dressing will endure indefinitely. With such borders the trees are under control, and need less of those after-manipulations that as often result in sterility as in fruitfulness.

FRUIT HOUSES.

Melons.—Considerable attention is needed at this season to prevent canker at the collar and in the old growths, the only remedy for which is to apply freshly slaked lime on the first appearance of the disease, repeating the application as necessary. To lessen the tendency to canker and the fruit cracking reduce the supply of water both at the roots and in the atmosphere; indeed, the syringe must now only be used on very bright days, damping the house morning and afternoon while the fruit is swelling. The hot-water pipes may be lightly coated with sulphur to prevent the increase of red spider. Give a good watering to the last batch of plants directly the fruits begin swelling, earthing up the roots, and making the soil moderately firm. A temperature of 70° to 75° must be secured by day, with 5° less at night, allowing an advance from sun heat to 85° or 90°, ventilation being afforded carefully and moderately. In pits and frames water overhead must be avoided, and be very sparingly employed at

the roots. Renovate the linings when the heat is found declining, and employ a covering over the lights on cold nights. Keep all laterals in check by frequent stopping, affording as much light as possible to the principal foliage.

Cucumbers.—The prolonged dull wet weather has necessitated the employment of fires to secure a temperature of 65° to 70° at night and 70° to 75° by day. Syringe only on bright fine days and early in the afternoon, so as to have the foliage dry before night. The plants for autumn fruiting must have liberal attention to secure a strong growth, as much of the after success depends on this; therefore remove all tendrils and staminate blossoms, cropping but lightly, and do not allow the fruit to hang too long on the vines. Pinch out the growing points every eight or ten days; continue earthing up the roots as they protrude through the sides of the ridges and hillocks, and encourage surface roots by additions of fresh lumpy soil. The plants for winter fruiting have been potted off, and are growing in a genial temperature of 70° to 75°, with 10° to 15° more when the weather is favourable. Keep them near to the glass, and spare no pains to ensure a sturdy growth. Complete at once preparing the fermenting materials, if such are employed for bottom heat, a temperature of 90° being suitable, as the heat will decline; but where the bottom heat is furnished by hot water 80° is sufficient. Hillocks or ridges should be formed about 10 inches in depth and a foot over the top, employing turfy loam, and when the soil becomes warmed through the plants may be placed out, making the soil moderately firm. Pinch out all laterals up to the bottom of the trellis as soon as they become visible, and guard against slugs by drawing a circle round each plant with soot or quicklime a short distance from the stem. Maintain the heat in frames and pits by renovating the linings as necessary, and cover at night. Be careful in supplying water, and keep the growths fairly thin, stopping them a joint or two beyond the fruit, and removing bad leaves.

MUSHROOM HOUSE.

Preparation of material for forming successional Mushroom beds will need to be made, and it must be commenced with as little delay as possible to secure a supply when it is most appreciated—i.e., during the winter months. In the preparation of the materials the necessary dryness should be secured with as little fermentation as possible, as that induces a state of decay which is not favourable to the spread of the spawn and the growth of the Mushrooms. In open dry sheds there is no difficulty in securing the proper drying of the materials, especially if it be spread out thinly. Be careful not to have the material too dry, as after the beds are made much moisture will be evaporated, and the chances are that the heat will become exhausted for the want of sufficient moisture to continue the fermentation. Crude horse droppings are considered alone available for Mushroom-growing; but this is a mistake, as more enduring beds, as well as those producing the best quality Mushrooms, are those made of about three parts horse droppings to one of stable litter or sweepings formed of straw, chaff, sawdust, or hay. The material having been properly prepared and laid in the chambers or bins heat will soon be produced, and the beds should then be trodden well down or beaten with a mallet as firmly as possible. If the heat rise unduly beat the bed well down again, as it will settle down more closely as the fermentation progresses. When the heat in the body of the material is not over 90° nor less than 85° make holes in the bed about 2 inches deep, or so as to admit the pieces of spawn, which should be about half an inch beneath the surface of the bed. The holes may be 6 to 9 inches apart every way, and in each place a piece of spawn about a couple of inches square, pressing the material firmly around them with a thin layer over them, and then beat down as firmly as possible. In a week or ten days the bed should be earthed with a couple of inches depth of good yellow turfy loam, which can be beaten down to about an inch in thickness, making it smooth with the back of the spade. A covering of dry hay or soft straw will ensure greater uniformity of heat and moisture in the bed, but it must only remain on until the Mushrooms commence showing. Earlier-formed beds will shortly commence bearing, and should have the surface kept regularly moist by damping with tepid water, and the temperature kept steady at 55°. Avoid a too moist condition of the beds and atmosphere.

PLANT HOUSES.

Dutch Bulbs.—The first batch of Early White Roman Hyacinths, also Blue Roman, with Double Roman and Paper White Narcissus potted some time ago, have rooted and should be removed from the plunging material, and be placed in the shade for a few days until any growth they have made becomes green, when they can be arranged on shelves near the glass, and not subjected to a higher temperature than 50° until the spikes are a good size, after which the flowering may be accelerated by a slight increase of heat. Another batch of bulbs should now be potted and treated similarly to the first batch—i.e., plunged in ashes in a frame to protect them from heavy rains. Hyacinths, Narcissuses, Tulips, Crocuses, &c., intended for early flowering should be potted at once, plunging them in ashes near a wall, or where they can be protected from heavy rains and frost. When sufficiently rooted they can be transferred to a light position in a house where they will be kept slowly growing, and thence to the forcing pit as required.

Chrysanthemums.—Attend to staking and training these—the upright bush fashion is the best for general purposes—using no more sticks than are necessary to keep the plants in shape. Thin the flower buds in good time, as where good flowers are wanted all the side laterals should be removed from the principal shoots, and the buds thinned to one to each shoot as soon as discernible. Plants that have all the strong shoots retained should also have but one flower allowed to each. The small varieties must be moderately thinned, so as to enhance the size of the flowers. Afford liquid manure abundantly, and syringe in the afternoon of dry days, and if aphides appear promptly subdue them with an insecticide or tobacco water.

Pelargoniums.—Plants of Show, Fancy, Spotted, and Regal varieties that were shaken out, repotted, and placed in pits or frames should be housed at once, assigning them light positions, where they will not be more distant from the glass than a couple of feet. Afford water very sparingly at present and for some time to come, giving only sufficient to keep the plants in progressive growth, as a too moist condition of the soil is not favourable to root-formation, and induces too much leaf growth. Zonals being prepared for winter flowering should be placed under glass at once in a dry pit where ventilation can be freely given, and when required to bloom they should be placed in a temperature of not less than 50° at night.

Heliotropes, Salvias, Solanums, Mignonette, Tree Carnations, &c., grown for winter flowering should be at once taken under cover, as the first frost will do the two former serious injury. The situation for these plants cannot be too light, and to flower freely all but the Solanums (which are of course grown for their berries, and these to be durable must not have more heat than an ordinary greenhouse) must have a temperature of 50° secured to them.

Selizostylis coccinea and *Anemone japonica alba* grown in pots specially for indoor decoration must now be moved indoors, and in a greenhouse or conservatory they will make a fine autumn display. Plants also of dwarf Seabious grown in pots should be moved indoors and given weak liquid manure; they will continue flowering for a long time, and are very useful for cutting.



REFLECTIONS ON THE SEASON.

WHATEVER have been the case in England, we bee-keepers of Scotland have nothing to boast of as the result of the season's work. In spite of a terribly severe winter stocks were both numerous and strong in spring, and, though later than usual, swarmed with uncommon pertinacity. There, however, our record of success closes. Speaking generally, honey we have none. Most of us will have to winter entirely on sugar. Even the few who have taken any honey will have to replace it in quantity, if not in value, with syrup.

When we inquire into the causes of such a failure we have no hesitation in acquitting both bees and bee-keepers. The former have done their very best; the latter we know have in most cases

done the same. Never before, we honestly believe, were such skilful preparations made and such unremitting attention bestowed with a view to surplus honey, and never before were such attentions so hopelessly baffled. The causes, speaking generally, were entirely beyond human or apian control. The three great sources of surplus—fruit blossoms, Clover, and Heather—were all there, but the first alone seemed to yield more than a hand-to-mouth living. Clover bloomed as richly as ever was seen, and the hills are still aglow with the purple Heather bloom, but neither Clover nor Heather seemed to offer much attraction to the bees. The real fact is, we in Scotland have spent the summer under a belt of clouds, which only cleared away at times to allow the earth to radiate its little heat into the higher regions of the atmosphere. The clear nights have, therefore, as a rule, been frosty, and it is matter of observation that, however fine may be the succeeding day, the honey secretion will be almost nil. During the whole season from about June 7th these frosts, combined with northerly winds and absence of sunshine, have thwarted every effort to obtain honey in any quantity.

As a rule, early swarms are now the best supplied stocks, as many of them had the chance of a few good days for storage before there was brood in the hive to attend to; yet 20 lbs of honey is the most I have taken from my best, and even that has to be replaced by sugar. Stocks worked on the non-swarving system, besides having been the source of unusual trouble during the swarming mania, have done no better than early swarms; indeed, as a rule, they have yielded less surplus, and their vast populations have already all but consumed their summer's store. This is another link in the evidence in favour of the limited swarming system.

As a result of the peculiar season, favourable enough for breeding, but deficient in surplus honey, supers have been bred-in to an unusual extent. In some cases brood was found in each of two or three tiers of supers. Though I have not had any trouble from this cause, I have seen so much of it in other apiaries that I venture to note two undoubted sources of the evil that lie within the control of the bee-keeper. The first is the habit so generally followed of placing the second tier of supers below the first. I have generally followed this system, mainly with a view to preserving the first tier from the discoloration caused by the traffic of the bees through it towards the highest tiers, and the ease with which it may subsequently be removed. In favourable seasons I have never had any cause to regret this practice; but in such a season as the past it has frequently happened, unknown to the bee-keeper, that eggs were deposited in the first tier before being raised by another. This afforded the best possible inducement for the queen to fill the intermediate supers with brood, and suggests the advisability of altering our practice on this point, though it may involve some extra inconvenience. The second source of the trouble has been in the more general use of drone foundation in the supers. Experiments conducted in my own and others' apiaries are conclusive in favour of worker foundation at any time. Bees preparing to swarm, as those in hives heavily supered frequently are, are too fond of raising drones to make it good policy to tempt them into supers by means of drone foundation. They will work on it readily enough, but mainly for a purpose, and that the raising of drones. This evil is all the more felt where worker foundation is largely used in the stock hive. I have found, on the other hand, that hives not intending to swarm, such as those with queens of the present season, will finish six sections with worker guides before they will "put a tooth" on the seventh one of drone foundation.

While on the matter of foundation it may be remarked that its use during the season has been corroborative of its value. As a rule, swarms left to build their own combs have failed to more than half fill their hives, while even late August swarms on foundation are as good stocks as any. The owners of dome-shaped skeps thus find themselves in a very unenviable position. Last week I drove the bees from four such skeps standing beside each other, all swarms of the present year, and found that I could not fill more than three Woodbury frames with the transferred combs from all the four. I added three sheets of foundation, but found the united swarms all too small to make one good wintering stock, and the honey in the four did not average 2 lbs. to each.—WILLIAM RAITT, *Blairgowrie*.

TRADE CATALOGUES RECEIVED.

- James Yates, Stockport.—*Catalogue of Bulbs.*
 W. Paul & Son, Waltham Cross, Herts.—*Catalogue of Roses, Fruit Trees, and Evergreens.*
 Isaac Davies, Brook Lane, Ormskirk, Lancashire.—*Select Rhododendrons and Azaleas.*
 George Cooling & Son, Bath.—*Catalogue of Bulbs.*
 Harrison & Sons, Leicester.—*List of Bulbs.*
 Sherratt & Pointon, Biddulph near Congleton.—*Catalogue of Bulbs.*
 J. Cheal & Sons, Crawley, Sussex.—*Catalogue of Trees, Shrubs, Bulbs, and Seeds.*

TO CORRESPONDENTS.

Books (A.).—The "Cottage Gardener's Dictionary" is not published at this office, and we are unable to say when the next edition will be ready.

Peaches Decaying (D. East).—If you will send fresh fruits wrapped in smooth paper they shall be carefully examined; the cotton wool adhered so closely to them that it could not be separated without tearing the skin. They appear to be infested with a fungus.

Amaranthus salicifolius (A. A. M.).—Seeds of this plant can be had from any seedsmen who advertise in our columns, and the produce will no doubt be as good as from seed obtained from Queensland. We have seen much better examples of the plant than those you have sent grown from seed raised in this country. We do not understand what you mean by asking if the plant is a Coleus after you have correctly described it as an Amaranthus.

Gloxinias Starting into Growth (Idem).—You have given the plants too much water after they ceased flowering. If you have a stove in which a temperature of 65° can be maintained in the winter you may remove the corns and pot them in fresh soil, and grow them on a shelf near the glass; if you have not such convenience, all you can do is to gradually diminish the supply of water and permit the growths to wither and the corns to rest until the spring. They are almost certain to contain some buds still in a dormant state, and they should be kept dormant.

Insects on Cucumbers (Hortus).—It is impossible for anyone to say with accuracy what the insects are without seeing them. You cannot do better than fumigate the house lightly on a few consecutive nights; strong fumigation would injure the plants. If this fails syringe the plants with an insecticide, or, what would perhaps be better, apply it with a vaporiser such as was advertised in our columns a few weeks ago.

Writings on Strawberries (J. E.).—In reply to your question, "What do you think of my compilation of matter from the writings of Messrs. Gloede, Thompson, Luckhurst, Douglas, and others, with additions and modifications?" we reply candidly that we think very little of it; and we have an opinion that at least some of the writers whose excellent work has been "modified" will not be flattered by having their names so prominently associated with what you have produced. We hope you have sent each of them a copy. You do not adopt the usual course of stating whence you obtained the writings; and we presume, therefore, that you did not obtain the permission of the authors for thus treating their work.

Peas (F. Heath).—The same Pea was sent to us last year from the north of England. It appears to be distinct. Although the pods are short they are remarkably well filled, and as you say it is very prolific it is no doubt a useful variety; but in appearance the pods are much inferior to those of the leading varieties in commerce. The Peas you have sent were much too old to enable us to judge of their quality. If you have reason to think the variety possesses special merit you should endeavour to have it tried at Chiswick. If you write to Mr. Barron he will inform you if he is able to test it with other varieties.

Insects on Plum Trees (F. J.).—The under sides of the leaves have been much infested with aphides, of which there are many on those you have sent, and the exudations falling on the upper surfaces of the leaves have formed a suitable nidus for fungus, hence the present unsightly state of the leaves. The trees ought to have been well and timely syringed with an insecticide, and the evil would have been averted. As the trees, however, appear vigorous they will not probably be materially injured, but you had better prevent similar attacks in the future. It is impossible to name small, imperfect and unripe Pears, but it is not at all improbable that your tree is correctly named, and you would have had better specimens with better treatment.

Cissus discolor (S. J.).—No stove plant is of easier culture than this. Raise young plants in the spring; pot them in a mixture of equal parts of peat, loam, and leaf soil, and place them in a moist partially shaded position in a well-heated stove. The plants do not grow freely nor the leaves colour well under intense light and in a dry atmosphere. We have seen the plant luxuriate in tropical ferneries where the air was almost saturated with moisture and the shade dense, and we have known an unsightly plant removed from a dry stage and placed under it, then commence growing freely.

Pitmaston Orange Nectarine (W. J.).—The fruit you have sent resembles a very small specimen of this good Nectarine. Your trees have possibly been overcropped, or are otherwise not in satisfactory condition. Fruit of the first size and quality is produced in unheated houses; but to ensure full flavour it should hang until it shows signs of shrivelling. Perhaps you gather it too soon and before the flavour is developed. The Fern fronds are shrivelled, and we cannot determine the names.

Grapes Shanking (Paddle).—Wet soil is not the sole cause of Grapes shanking. Overcropping is a very prominent cause; extreme dryness of the soil will also cause shanking, as will a sharp cold current of air acting on the laterals in their early stages of growth. The only means of ascertaining whether a border is too wet is to examine it by digging down to the concrete; we have known some inches of water accumulate on the concrete in consequence of the "fall" not being sufficient, or the outlet of the drains having been neglected. We suspect your Vines have been overcropped—that is, the laterals where the shanking occurs are too weak and the foliage insufficient for the local demands of the Vine and fruit. You afford us no data whereon to found anything but a general reply, which, however, may lead you to find out the cause of the evil, and this being ascertained the remedy in most cases naturally suggests itself. The fruit to which you allude is probably the Loquat (*Eriobotrya japonica*), of which you will find a figure and full description on pages 292 and 293 of our last volume, the issue of April 4th of the present year. If you have not preserved the number it can be had in return for 3½d. in postage stamps sent to the publisher.

The Artillery Plant (Idem).—It is quite true that the "explosions" of this plant can be heard, but they are very faint, and it is only by placing the ear near the plant that any sound can be heard at all, but the "smoke"—that is, the puffs of the escaping pollen, is plainly visible. The plant must be grown in a light position on the shelf of a stove, or greenhouse in summer, so that it flowers freely. If when the buds are ready for expansion the plant is

sprinkled with water, or dipped, and the superfluous water then shaken off, the anthers, owing to the great sensibility of the filaments, suddenly expand, and the pollen is forcibly dispersed.

Pyrus (Cydonia) japonica Fruiting (Kittie).—It is not at all unusual for fruit to be produced by this ornamental shrub when it is grown in a favourable position and the branches secured to a wall. We have seen fruits very much larger than those you describe. The fruit can be preserved and eaten safely by those who like it, but we do not remember having met with anyone who said he enjoyed it. If any of our readers have a different estimate of the fruit we shall be glad to know how it was prepared to render it acceptable.

Fig for the Open Air (J. E.).—You cannot have a more suitable variety than the Brown Turkey. You may proceed as you propose with your tree; remove also the luxuriant growths, and admit the sun and air to the shorter-jointed growths remaining.

Lily of the Valley (P., Mitcham).—You may either sow the seed now in pots and plunge them in frames, or sow in spring in gentle heat. The seed is quite ready for gathering; but we think you have made a mistake in allowing it to mature, as the corns must necessarily be weakened, and the plants are more conveniently raised by division than from seed.

Judging Potatoes and Peas (R. A.).—Unless separate classes are provided for round and kidney varieties, which ought always to be the case, dissatisfaction is sure to be given, for, as you state, one judge may prefer round and another kidney-shaped tubers. Such occurrences as the one to which you direct our attention is the result of the system more than the fault of the men. As to a certain judge having "a particular fancy for a certain variety of Pea, and always giving it the prize," we presume he does not judge alone but has a coadjutor, and both agree that a given dish is best. It is not at all unusual for a certain variety of Pea and Potato to win several prizes. It is of the first importance that the judges selected be competent, and it is desirable in the case of provincial shows they should be strangers to the district. The publication of your letter, as you have stated the case, would be of no service, and would provoke unpleasant replies. If you were to give more thought to the subject and treat it on a broad and general basis you might contribute a letter that would be useful.

Insects Destroying Willow Leaves (W. Harrison).—The flies sent belong to the genus *Anthomyia*. The determination of the species in this genus is difficult without a "series" of the insects can be examined. We note your remark that the larva are apparently confined to the species of *Salix*, leaves of which are enclosed—*S. Russelliana*, we conclude. An important question is, How the flies could be prevented from depositing their eggs? for little can be done when the larva have hatched out. In plantations of Willow perhaps the flies might, many of them, be smoked out of existence if weeds, &c., were made into bonfires at the period they are first noticed on the wing; or you might try the effect of saturating some pieces of flannel or other old material with paraffin and hanging them in one of the bushes immediately the insects are seen flying about the trees in spring. If you try this experiment, keeping the flannel moist for a time by renewed applications of paraffin, you will oblige by communicating the result to the Editor. The plan has been proved of value in preventing attacks of the Celery fly in gardens.

Wintering Bedding Plants (G. P.).—*Alternanthera* and *Coleus* are stove plants, and cannot be safely wintered in the structure in which the temperature falls frequently below 55°, and a minimum temperature of 60° is better. *Mesembryanthemum cordifolium variegatum* (No. 1), may be preserved on the shelf of a warm greenhouse where the temperature does not frequently fall below 45°; it is equally safe in a higher temperature, and will exist in a lower if the soil and atmosphere are not too moist. The plant No. 2 is *Mesembryanthemum tenuifolium*, and No. 3 *Sedum Sieboldi*, both of which will be safe in an ordinary greenhouse temperature, or any house from which the frost is excluded, the soil being kept comparatively dry during the winter, but not dust dry. *Sedum glaucum* is quite hardy, and will pass the winter safely in well-drained soil from which the rain passes freely, excessive wet being sometimes injurious. We cannot advise you on the *Saxifraga* without knowing the species. We do not name varieties of *Pelargoniums* nor any other florists' flowers, which are far too numerous, and many of them too much alike to be determined except by actual comparison with others in a large collection. We will readily attend to your questions and aid you so far as we can if you state your wants fully and clearly, yet as concisely as possible.

Scale on Pear Tree (Idem).—The scale insect on your Pear tree is *Aspidiotus ostreaformis*. If you dissolve 3 or 4 ozs. of soft soap in a gallon of water, and add thereto half a pint of paraffin, and apply to the branches, not the buds, scrubbing them thoroughly, you will soon reduce the numbers of the insects.

Datura Stramonium (F. A., Lichfield).—The above is the name of the plant you have sent, and on which you require information. It is commonly called the Thorn Apple or Stramonium. It is an acrid narcotic, belonging to the family of Nightshades. It is found wild in Britain, having escaped from the gardens, and its habitat is generally among rubbish and on dung-hills. It is easily known by its large oval seed vessels, thickly covered with stout sharp spines. The whole plant has a disagreeable, nauseous, and heavy odour, particularly when bruised, and an acrid bitter taste. It loses much of its odour by drying, but retains its properties. When taken internally in moderate doses it causes numbness, vertigo, dimness of vision, dilation of the pupils, produces a slight delirium, intoxication, and forgetfulness, and these effects pass off in five or six hours; but if the quantity taken be large, then all the symptoms of poisoning are presented, as heartburn, intense thirst, a feeling of strangulation, delirium, madness, convulsive movements, and paralysis; congestion of the brain ensues, symptoms of inflammation are manifested, and death follows in twelve or fifteen hours. M. Orfila states that Stramonium acts with more force on the brain than Belladonna, and produces more furious delirium. Stramonium smoked like tobacco is a popular remedy for the cure of asthma. Its use in this way has been derived from the East Indies, where other species are used for this purpose. It is the root and lower parts of the stem which are so employed, and the smoke excites a sense of heat in the chest, followed by copious expectoration, and sometimes attended with temporary vertigo and drowsiness. The seeds have the same nauseous bitter taste as the leaves, and in them Brandes discovered an alkaline principle called Daturia, combined with an excess of malic acid. It is in the form of colourless crystals, inodorous, and when first applied to the tongue is bitterish, but afterwards of the taste of tobacco; its action is poisonous.

Selection of Fruits (R. F.).—The following varieties will be suitable for your purpose. Peaches: Hale's Early, Rivers' Early York, A. Bee, Dr. Hogg, Royal George, and Grosse Mignonne. Nectarines: Lord Napier, Stanwick Elrige, Improved Downton, and Pine Apple. We doubt if you can plant any

more profitable Plums either against walls or as standards than Rivers' Prolific, The Czar, Purple Gage, and Victoria. If you only want a few trees we should select the first and last-named, as it is a mistake to have very small quantities of several sorts for market purposes.

Planting Vines in Autumn (W. B.).—Provided you plant the Vines now or later on, they must not be kept growing through the winter, but should be cut back to the bottom of the rafters or trellis when the leaves have fallen, and be given a season of rest. They will not require a higher temperature than 40° to 45° by artificial means through the winter, allowing them to start naturally in spring, and when growth is fairly started encourage it as much as possible. Autumn planting is not advisable. The best time to plant Vines is spring, when the shoots are an inch or two long, and if well attended to they will make strong canes, and should be cut in early winter to within three eyes from the bottom of the trellis. Vines propagated from eyes in February, grown and planted out early in June, will make strong canes by autumn, probably better than those planted the autumn previous; but we should plant in spring, as cut-backs are easily managed and have roots and stored-up sap calculated to insure a good and well-ripened growth. Grapes that are the best for bottling are also the best for keeping on the Vines, but your query is so indefinite as to preclude our giving a satisfactory reply. State your requirements explicitly, and we shall be glad to help you.

Constructing a Vinery (F. J.).—We should have the house 16 feet in width instead of 12 feet, as there is much to be said in favour of a good breadth of trellis for Vines. The height at the back will need to be 15 feet for a house 16 feet in width, reckoning from the under side of the rafters, the house being a lean-to; and where there is a wall available and the aspect south, a half-span is not advisable, besides it is more costly. In front you will need brickwork from the bottom of the border about 3 feet 6 inches high, to allow for drainage and compost; and if the border is partly within and part outside, the front wall should have 9-inch pillars 2 feet between the openings, and arched over to admit of the roots passing from the inside to the outside border, and the top of the opening should be a little below the intended surface level. Above ground we should have about 18 inches of brickwork in front, and 2 feet 6 inches of wood-work and glass, or a 2-inch wall plate the width of the wall (9 inches), top plate 2½ inches, and 5 inches wide, the lights being made to open the full length of the house. By having the pathway about 3 feet from the back wall there will be plenty of head room. In addition to the ventilators in front we should have top lights 2 feet wide, to open the full length of the house, the front lights opening from the bottom outward being hinged to the wall plate at the top, the upper lights being opened by crank and lever movement as desired. We should have the rafters 2 feet 6 inches distance apart, these being 9 inches by 2½ inches, and between these midway have bars 4 inches by 1½ inch, these being fixed with the upper surface level, and each rebated half an inch wide and three-quarters of an inch deep for the glass, taking off the upper edge of the rebate with a plane, as we should glaze without top putty, only bedding the glass with putty and secure it in position with copper tacks. An iron cross-bar will be needed between the rafters to keep the wood sash at a proper level and width, otherwise it would warp or sink with the weight of the glass. The front lights should have 2-inch bars and be sashed to correspond with the roof. The glass should be 21 oz. thirds, and in squares double in length that of the width, or as near thereto as possible. At page 462, vol. i., third series, November 18th, 1880, is a plan of a lean-to vinery suitable for amateurs, which may probably help you. If you have not the number it may be obtained if you enclose 3½d. in stamps with address to the publisher at this office, stating the number of the Journal—viz., No. 21, vol. i., third series.

Naming Fruits (Leon).—The carriage of all parcels of fruit sent to be named must be paid by the sender; each specimen must be numbered and the name of the sender enclosed in the parcel, whether a special letter is sent by post or not. Only six specimens can be named at one time, and a portion of young growth should be sent with Plums. Your other question will be answered next week.

Names of Fruits (J. H. Goodacre).—1 and 2, We cannot name these; 3, Boston Russet; 4, Tower of Glamis; 5, Bedfordshire Foundling; 6, Minchall Crab; 7, Sturmer Pippin; 8, Federal Pearmain. (*Somerset*).—Pond's Seedling. (*W. R.*).—1, Sturmer Pippin; 2, Manks Codlin; 3, Not known, but not Red Astrachan. No growths nor foliage accompanied the Plums and they cannot be named. (*R. Veitch*).—American Mother. (*S.*).—1, Beauty of Kent; 2, Selwood's Reinette; 5, Claygate Pearmain; 6, Jersey Gratioli; 12, Purple Gage. (*C. H. Princep*).—Souvenir du Congrès. (*G. Hillier*).—1 and 2 not known; 3, Williams' Bon Chrétien. (*G. G.*).—Early Harvest and Red Astrachan. (*F. R.*).—Cellini. (*W. Bishop*).—2, Northern Greening; 3 and 5, Golden Nonpareil; 6, Dumelow's Seedling; 10, Ribston Pippin; 11, Domino. (*R. P. O.*).—The comical fruit is French Codlin, the other Reinette Van Mons. The Apple is Beadnell's Seedling. The Plums are—1, Coc's Golden Drop; 2, Jefferson's; 3, not known, no growth accompanied it. (*Mrs. Henniker*).—Leicester Burton Pippin, a popular market Apple in the midland counties. (*R. P. Williams*).—Cellini.

Names of Plants (A. Boyle).—*Nephrolepis tuberosa*. (*Douglas*).—1, Resembles *Oncidium lanceanum*; 2, *Oncidium splendidum*; 3, *Oncidium wentworthianum*. (*Rosa*).—The Orchid with brownish flowers is *Pholidota imbricata*, a native of several mountainous districts in India. For description and particulars concerning it see page 267 of the present issue. The other is apparently an *Epidendrum*, but was too withered to be determined. (*F. L.*).—*Chenopodium rubrum*. (*J. C.*).—*Phytolacca decandra*. (*S.*).—*Cotoneaster rigida*.

Queen Fertilisation (A.).—The facts you bring before us are of abounding interest. The small whitish mass is what you suppose it to be, but whether in a complete form or not we cannot yet determine. As soon as we received it on Saturday we examined it under the microscope, and the two hoods at once determined what it was. We then with a small quantity of water under cover placed it on what is known to histologists as the "warm stage," by which the object is kept up to a desired temperature, and very quickly the well-known movements of the spermatozoa commenced, or rather re-commenced. The whole mass of fluid driven out by pressure is still (Tuesday morning, ten o'clock) in rapid movement. An eighth objective and a deep eyepiece magnifying about 1200 diameters shows it to be full of countless millions of nucleated cells, which cannot be more than the thirty-thousandth of an inch in diameter. Each one of these has an irregular, vibrating, and dancing movement, which keeps the fluid in constant agitation. We intend after watching these phenomena to their close to treat the mass with very dilute potash to get the chitine scales separate from the rest, when we will report further to you on the matter. —F. C.

COVENT GARDEN MARKET.—SEPTEMBER 21.

TRADE has been dull, and the bulk of our goods has only been cleared by prices giving way.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	1 0 to 3 0	Lemons.....	½ case	18 0 to 30 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	1 0 2 0
Cherries.....	½ lb.	0 0 0 0	Nectarines.....	dozen	1 0 6 0
Chestnuts.....	bushel	0 0 0 0	Oranges.....	½ 100	0 0 0 0
Currants, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	1 0 9 0
„ Red.....	½ sieve	0 0 0 0	Pears, kitchen..	dozen	0 0 0 0
Figs.....	dozen	0 6 1 6	„ dessert.....	dozen	1 0 2 0
Filberts.....	½ lb.	0 0 0 9	Pine Apples....	½ lb.	2 0 3 0
Cobs.....	½ lb.	0 0 0 8	Strawberries...	per lb.	0 0 0 0
Gooseberries....	½ sieve	0 0 0 0	Walnuts.....	bushel	0 0 0 0
Grapes.....	½ lb.	0 6 4 0	ditto.....	½ 100	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	½ lb.	0 3 0 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	„ pickling.....	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley..... doz.	bunches	3 0 4 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 9 1 3
Carrots.....	bunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	½ 100	1 6 2 0	„ Kidney.....	bushel	4 0 4 6
Canlidowers.....	dozen	0 0 3 6	Radishes..... doz.	bunches	1 6 2 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts..... doz.	bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 6	Scorzoneria.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	0 0 0 0
Fennel.....	bunch	0 3 0 0	Shallots.....	½ lb.	0 3 0 0
Garlic.....	½ lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 2
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 1



POULTRY AND PIGEON CHRONICLE.

CONTINUOUS CORN-GROWING AND CLAY FARMING.

HAVING incidentally and briefly alluded to this subject we will now refer to the subject more fully. The scientific experiments of Messrs. Lawes and Gilbert at Rothamstead upon continuous corn-growing having proved not only interesting but successful, have induced a general change of opinion amongst the most intelligent and far-seeing agriculturists, a large number of whom formerly denied that such a system on any soil could be maintained under any circumstances with profit. But the experiments at Rothamstead teach us the fallacy of supposing that the benefit to be derived from artificial manures is fleeting and unstable. For upwards of thirty years phosphates and nitrate of soda applied upon heavy clay land at a cost of about 60s. per acre have maintained it in a most fertile condition, producing corn crops continuously, and returning on an average of years close upon thirty-six bushels of Wheat, and during a period of about twenty-eight years nearly fifty bushels of Barley per acre. We also notice that during the latter portion of these years it gave a better average produce than those obtained previously, thus justifying the conclusion that no retrogression had occurred, and that the same management which had so economically secured this high fertility can also maintain it.

Regarding this question of manuring there are some important facts, which demonstrate that on heavy land the greatest return both of Wheat and Barley have been reached with portable manures, and that upon an average of twenty-five years dissolved bones and nitrate of soda, at a cost of about 60s. per acre, produced several bushels of corn more than an annual dressing of fourteen tons of good farmyard manure. This is shown in a statement of Messrs. Lawes and Gilbert in the "Journal of the Royal Agricultural Society," vol. xxv., and vol. ix. second series. There is one result in the crops obtained in these experiments that ought not to be lost sight of, that the maximum crops were obtained in the most favourable seasons and *vice versa*, the year 1879 being the lowest of a long series of years, and practically exhibiting the

fact that we are more dependant upon seasons than upon any system of manuring. It must be remembered, however, that a dry climate like that of the eastern and south-eastern counties is also an all-important condition for successful continuous corn-growing. Amidst the frequent mists and rains of the extreme western counties of England or Ireland, or in various parts of the counties of Cumberland and Westmoreland, with a rainfall of 60 or 70 inches, it would be quite out of the question to extend corn-growing, or diminish the area of the roots and grass crops which in moist districts will prove advantageous, especially on home farms heavily stocked with cattle and sheep.

We will now refer to those who have in consequence been induced to carry out a system of continuous corn-growing and artificial manuring. The first and great pioneer in this matter whom we shall introduce to our readers is Mr. John Prout, who has published a pamphlet with the title of "Profitable Clay Farming under a Just System of Tenant Right." It will at once be seen that any question of tenant right does not apply on the home farm, or farms in hand and unlet, which at the present time of agricultural depression unfortunately prevails upon various estates throughout the kingdom, because under these circumstances the home farmer has nothing to prevent him from adopting a course of cropping and general management which may be considered best suited to the soil and situation of the farm, and most likely to yield a profitable return for the capital invested in the cultivation. The practical system adopted by Mr. Prout at Sawbridgeworth, Herts, should be understood by every home farmer or manager entrusted with the conducting and tillage of farms, and in order to obtain this object we recommend his pamphlet for their consideration. The system may be briefly described as perpetual corn-growing on heavy land, by means of deep and cheap steam tillage and liberal applications of artificial manure. Mr. Prout states, "The indispensable preparatory requisites are—1, effectual subsoil drainage, and 2, fields of considerable dimensions; to which may be added, 3, straight and neat fences; 4, sound headland roads; and 5, convenient field water supply." To this we may add as a necessary precaution in continuous corn-growing, that no wide hedgerows, or spreading timber trees, or woodlands should be allowed to exist which would injure the growth of cereal crops or prove damaging at harvest time. At this particular time there are probably large numbers of heavy clay land farms in almost every county being given up by the tenants. In various instances it is with great difficulty they can be let to tenants of experience and possessing sufficient capital, except at such a sacrifice as few proprietors are prepared to accept as occupiers, but preferring to take the land into their own hands for several reasons, especially where the land is foul and out of condition, or, as in many cases, being still very wet and requiring drainage, or the buildings and farmsteadings may be out of repair or require additions. All these are matters which will frequently induce the landowner to have carried out under the directions of his farm steward or agent. This was precisely the state of things which prevailed upon the Blount's Farm and Sweet Dews' Farm (which are now thrown into one), situated near Sawbridgeworth, at the time of Mr. Prout's purchase of these farms in 1861, and probably, as regards the state of the land, very similar to many farms which are now continually coming to hand in various districts. It perhaps will be best to let Mr. Prout speak for himself as to the manner and system he adopted to bring them into the highly profitable state and condition in which they now are.

"I began at once with permanent improvements; not, however, in building, for the two sets of farm premises with little addition were ample for my purpose. The land, consisting of clay and strong loam lying upon a subsoil of drift clay and cretaceous gravel, was in a wet condition. Here, therefore, as will be the case upon millions of acres still lying unimproved, the first and

fundamental process of amelioration was to drain the whole effectually with pipe tiles. The land lay tolerably well for draining, and the first thing was to ascertain, by test holes dug in the different fields, what would be the best depth at which to lay the tiles. The average depth chosen was $3\frac{1}{2}$ feet, the distance apart 33 feet; the 2-inch pipes of these parallel drains empty into 4-inch and 6-inch mains, discharging, in most cases, into an open drain or ditch of 5 or 6 feet in depth, these mains intersecting or dividing the fields, and conducting the surplus water into a stream which is a tributary of the river Lea. The work was completed in four years, at a cost of £6 per acre. The rainfall at Sawbridgeworth, I believe, averages about 23 or 24 inches per annum, which is moderate in quantity compared with the fall in the west of England; but I cannot assign too much importance to the work of draining well. Indeed, the transformation effected in the very texture of the soil, as well as in its temperature and in the climate of the farm (to which I shall refer), are results following from this efficient drainage and from the steam tillage which was rendered possible by the drying of the land." We have quoted from Mr. Prout's pamphlet, seeing how aptly his proceedings may be applied in certain districts upon land coming to hand, and for the present unlet, which upon strong soils at the present is the only possible way of making them profitable in occupation either as arable or pasture land, although the cost will amount, in some cases, to one-third or one-fourth of the purchase value. We propose next week to make further quotations, making also our own comments, showing how far they may be worth following on a home farm or land in hand.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are still engaged in the work of autumn cultivation by following the steam cultivator, which will have been passed through the soil both lengthways and crossways by harrowing with Howard's self-lifting drag, followed by the two-horse roller, until the barrowings and rollings have been repeated enough to bring all couch and weeds to the surface, and eared away to a heap, and not regarding a little earth attached, or so free from it as is required for burning in small heaps in the field in dry weather. This is the surest way to clear the surface of any rubbish, and preparing it in readiness for a deep winter fallow ploughing after the Wheat-sowing is concluded. Some farmers burn these clods of couch and earth in large fires to obtain ashes for the purpose of drilling with future crops, which is not a bad plan; other farmers use the ashes for dressing the meadows or parkland, but we prefer to lay out the couch lumps with earth attached on to grass land without burning, for we have seen it laid out fresh from the field, and do more good on the grass land and more lasting in its effects than a good dressing of farm-yard dung. Some horses will be engaged drawing out dung from the heap or yard, as the case may be, on to the Clover leas; and here we must refer to the effect of the dung-spreading machine, which when attached to the dung-cart will spread the manure of any condition or state, whether decayed or otherwise, as fast as it can be hauled from the cart into the machine, which work is also done better and quicker than by the ordinary hand labour. Upon the hill farms and the dry friable soils where Wheat is commonly sown after Clover the ploughing and pressing may now succeed the dunging as fast as spread, as early-ploughed Clover lea is best when allowed to get settled and stale before being sown or drilled. If the work on the home farm should be in arrear from any cause this ploughing and pressing work can be done simultaneously by the steam plough turning four or five furrows at one operation, and in this way will fetch up any lost time which may have occurred. We wish here to state that on light land after Clover we consider that the Wheat is much surer to retain plant when sown broadcast, or, what is better, by pressing and drilling at one operation, whereby the seed is made to fall into the groove caused by the ring of the presser than when worked down and drilled in the ordinary way, because the seed is seldom buried deep enough to feel the solid ground and obtain a firm hold early enough to stand the effects of winter weather, and then the plants become a prey to insects, such as wireworm, slugs, &c., and is more likely also to be lifted out by frost when the ground shrinks after a thaw. In the event of applying guano or any artificial manures at the time of sowing, it is always more effective and acts better on the plant when buried deep in the press grooves than when applied by the drill, even though the drill may be made to deposit the manure deeper than the seed. Again, we like the plan of ploughing, pressing, and seeding light land after Turnips or other root crops better than by drilling the seed, the saving of a regular plant being much more certain. It is none too soon to drill or sow Wheat upon the hilly and exposed districts on the chalk or limestone soils, for the young plants on such land ought to obtain a good hold upon the subsoil before Christmas.

Hand Labour.—Hedging and ditching may now be done with advantage, particularly upon the strong flat-lying land with high banks and deep dykes, and especially upon farms where there is much underground draining done, which finds an outlet in the ordinary ditches of the farm, for the outfalls can then be found and cleared so as to work freely during the winter. It is, however, the

best plan to have a map of the draining done in every field, not only showing the number and direction of the drains, but the outfalls also; for unless this is done and kept with attention it is not only difficult to keep open the outfalls, but in the event of a stoppage the repairs may be effected without much trouble or expense, when, by referring to the map, we can find all the drains. We have done this mapping of the drain work on various estates on which we have directed the drainage, and it has given great satisfaction to the proprietor, and especially after a few years when the bailiff and labourers have been changed.

Live Stock.—Autumn grass is now in most cases quite plentiful, and well suited for dairy cows, which are now holding out the milking period better than usual. It is a good time to buy in young cattle, both yearlings and yearlings off. Those brought over from Ireland which are now offering in the markets, are of an improved breed and character compared with the importations of a few years ago. We have lately had the opportunity of buying this young stock, both steers and heifers, at a moderate price. As, however, these Irish importations are mostly reared from cows of various characters, but begotten by a good shorthorn bull, they have good long and thick coats, designating their parentage, but the best only should be selected for keeping; and it is in this selection where the judgment and experience are required, because those accustomed to this business can pick out nearly every animal that comes from the best cows, and this is especially desirable both in steers for fattening and heifers for breeding, but particularly in the latter; for we find the kindly-looking stock best for the dairy, but for steers to go into the boxes for winter feeding we prefer the heavy-fleshed thick-coated animals, which make beef quickest and the heaviest weights when sold. The season is now arrived for buying in the early-lambing horned Dorset and Somerset ewes to go into the home and southern counties where the early lambs are principally reared for the London market. The first and principal fair for the purchase of these ewes is held at Appleshaw in the north of Hampshire the first week in October, at which time many flocks will be just beginning to drop their lambs, and these ewes are now for the most part sent up out of Dorset and Somersetshire by rail, whereas they formerly used to travel to the fair, leaving their native pastures and reaching the fair ground at the end of a week's travelling. Still the ewes when forward in lamb do not suffer so much from travelling as they do by the treatment they get on the railway. Some farmers even now go down and buy the stock at their home, and drive them long distances instead of moving them by railway.

POULTRY AND PIGEONS

SILVER-GREY DORKINGS.

I HAVE been requested by the managers of the Crystal Palace Show to collect for a cup for Silver-Grey Dorkings. I have always thought that shows should be self-supporting; but as I am informed that the last Palace Show was not financially a success, and it is a show exceptionally interesting and enjoyable to all fanciers, I cannot refuse once more to appeal to Dorking breeders through your columns. The cup is to be of the value of four guineas for the best adult Silver-Grey Dorking cock or hen. Intending subscribers will save me much trouble by kindly sending their contributions direct to myself.

While writing of the Crystal Palace Show it may not be out of place to state that last year I was a witness of the repacking and departure of the birds at the close of the Show. The care, order, and rapidity with which this operation was carried out (a point at which arrangements break down at many shows) was most praiseworthy, and would, I am sure, have re-assured those most diffident of trusting their pets at public exhibitions.—O. ERNEST CRESSWELL, *Morney Cross, near Hereford.*

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at Charing Cross Hotel on the 19th inst. There were present the Hon. and Rev. F. G. Dutton (in the chair), the Rev. E. H. Morgan, and Messrs. A. Comyns, H. R. Dugmore, J. C. Fraser, and S. Lucas.

NEW MEMBERS.—The following new Member was elected: John Westacott, 5, Trumpington Street, Cambridge. The following new Associate Members were elected: Harry Greenwood, Northoline, Gainsborough; John C. Parker, 2, Beech Villas, The Lound, Kendal.

ELECTION OF COMMITTEEMAN.—Mr. George Vigers, Horsham, Walton-on-Thames, being the only candidate nominated to the vacancy on the Committee, was declared duly elected.

OWNERS BIDDING FOR AND BUYING-IN THEIR EXHIBITS.—The opinions (copies of which are annexed hereto) of Mr. H. H. Cozens-Hardy of the Equity Bar, and Mr. John Anstie of the Common Law

Bar, which had been taken by the direction of the Committee, were considered, and in view of these opinions it was resolved that—

“The resolution passed at the meeting of the Committee held on the 28th March last, condemning the practice of owners *being permitted* by poultry show committees to bid for and buy-in their own exhibits, be rescinded.”

CLUB SHOW.—The resolution, of which notice had been given at the last meeting, was proposed and seconded, and after some discussion passed in the following amended form—

“That the Poultry Club do (if satisfactory arrangements with that object can be made) guarantee the expenses of, and give prizes at a Show to be held during this season, and do forthwith open negotiations with the Committee of the Cambridge Ornithological Society, with a view to holding such Show in conjunction with them about the beginning of January, 1882.”

The following gentlemen were appointed as a sub-committee to carry out the above resolution: The Rev. E. H. Morgan, and Messrs. S. Lucas, and L. C. C. R. Norris.

RETURN CARRIAGE FROM RAMSGATE SHOW.—Complaints from several quarters having reached the Secretary that, although it was stated in the schedule to the recent Ramsgate Show that arrangements had been made with the South-Eastern Railway Company that all exhibits should be returned from the Show carriage free, yet payment of the full carriage had been in all cases exacted by the railway company, it was resolved—

“That the Secretary be directed to write to the Secretary of the Ramsgate Show asking what arrangements (if any) had been made by the Show authorities with the South-Eastern Railway Company as to the carriage of exhibits returned from the Show.”

SHOWS TO BE HELD UNDER POULTRY CLUB RULES.—An application that a special prize of £1 1s. should be granted to the Show of the “Nottingham Amalgamated Poultry, Rabbit, and Pigeon Society,” to be held in October under Poultry Club rules, was considered and acceded to. The Secretary reported that Leek Show was also to be held under Club rules.

NEXT MEETING OF COMMITTEE.—The next meeting was fixed for October 26th at Oxford.—ALEX. COMYNS, *Hon. Sec., 47, Chancery Lane, Sept. 20th, 1881.*

[We are unfortunately prevented by pressure upon our space from publishing the opinions above referred to. The general effect of them, however, appears to be as follows: That a condition of sale authorising owners to bid is perfectly legal; that even in the absence of such a condition an owner may bid for and buy-in his exhibits either in the open or selling classes unless the sale is declared to be “without reserve;” that an owner may claim his own birds in either class at the sales office; and that he may withdraw his birds from sale at any time upon payment of the commission upon the catalogue price. There is only one point upon which there appears to be any difference between the two opinions. Mr. Cozens-Hardy's opinion is, that it being lawful for the owner to bid for and buy-in his birds, a purchaser at a price run up by such bidding would have no legal remedy; while in Mr. Anstie's view, although an owner may bid for and buy-in his exhibits, yet he might, in the event of first bidding and then allowing the bird to go to a purchaser at a price raised by his bidding, be liable to have the sale avoided or have an action of damages brought against him, unless the purchaser had notice or knew that the owner was bidding. The case laid before counsel was based upon and contained a full statement of the rules and conditions of the Crystal Palace and Birmingham Shows.]

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881. September.		Baromet- er at 32° and Sea Level	Hygromet- er.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sun.	11	29.958	54.5	52.3	N.	56.6	63.4	51.3	84.0	50.8	0.014	
Mon.	12	29.995	56.3	53.1	N.W.	56.3	59.7	53.2	77.7	51.3	—	
Tues.	13	30.109	55.8	53.6	N.W.	56.3	64.4	51.4	102.2	49.8	—	
Wed.	14	30.126	56.3	53.8	N.W.	56.2	69.5	47.6	117.9	40.6	—	
Thurs.	15	30.122	54.8	52.7	N.	56.1	63.5	45.7	114.0	41.6	0.016	
Friday	16	30.221	49.8	49.6	Calm.	55.6	64.3	41.7	90.0	37.3	—	
Satur.	17	30.064	57.6	56.8	S.W.	54.6	69.4	45.5	113.2	39.8	0.041	
		30.085	55.0	53.2		56.0	65.6	48.1	99.9	44.5	0.071	

REMARKS.

11th.—Dull damp day, with occasional slight showers.
12th.—Dull and drizzly all day.
13th.—Fine pleasant day, but not very bright.
14th.—Beautifully fine, bright, and warm.
15th.—Foggy morning with slight showers; fine bright afternoon.
16th.—Dense fog all the morning; fine afternoon, slightly foggy.
17th.—Fog early; fine bright day; cloudy evening.

A variable week, some days very pleasant, others the reverse, on the whole fine but not bright. Temperature rather lower than that of the preceding week, and almost exactly the average.—G. J. SYMONS.



29th	TH	Sale of Stove and Greenhouse Plants at Mr Parker's Nursery,
30th	F	Sale of Orchids at the Mart, Tokenhouse Yard. [Tooting.
1st	S	
2nd	SUN	16TH SUNDAY AFTER TRINITY.
3rd	M	
4th	TU	
5th	W	Sale of Bulbs at Mr. Stevens' Rooms.

BOILERS VERSUS WATER.

NOW frequently we are asked, "What sort of boiler do you use?" but who ever heard the question asked, "What sort of water do you use in the boiler?" Yet the latter is in my estimation the more important of the two questions, sediment being deposited and corrosion formed in proportion to the amount of chalk and iron in the water. This sediment, or furring, ultimately chokes up the boiler, which is followed by bursting, repair, and too frequently removal before the apparatus is half worn out, the latter involving a serious expenditure.

During the severe weather we experienced last winter one of our 8-foot Trentham boilers showed signs of giving way, which gradually increased until April, when the water issued from the cracks to such an extent that the fire was completely useless, and had we experienced rough weather something must have been done, but the sun coming to our aid rendered the question of repair or removal quite optional for a time.

I consulted one of the principal hot-water engineers in London as to what we could do. The reply was, "You will never do any good with the boiler, you will have to put in a new one. How long has this one been in?" "Nine years, two of them heating over two miles of piping when required." "Ah! it is full of sediment from end to end. I know you will never get it out to do any good. We have tried to clean out boilers, but it was no use," &c. With this I resolved to see what could be done, and took the earliest opportunity of taking the matter in hand. I commenced by taking out the furnace doors, bars, and bridge of boiler; then drilled holes and punched old rivets in the middle of the boiler along the side of the crack 18 inches long. I then set back 7 inches to clear the bulge caused by the deposit, and removed the whole piece 18 inches by 7, behind which I found the deposit concreted as hard as an iron wall, which I had to remove with hammer and chisel. The next question was how to remove the sediment from the bottom of the boiler, as the plug hole was too small; consequently I cut a hand-hole 7½ inches by 4½. I then succeeded in removing the deposit off the bolt-heads, and with chisels and bent irons worked it down the sides of the boiler and so cleared the whole of one side. I then turned my attention to the other side, and in the same way cut out the piece 8 inches by 5 inches wide, where there was a split 8 inches long. I found this side of boiler exactly in the same state as the other. I chiselled out the deposit, and then by means of bent rods dislodged the lumps on the top of

the boiler immediately over the fire, and gradually cleaned and washed the whole boiler from end to end.

The next thing was how to put on the plates. We first drilled the bolt holes, then with a piece of perforated zinc cut to the shape of the boiler and size of the necessary patch, and punched holes along sides to correspond with the bolt holes. We had thus a proper index to work from. We then cut plates of the proper sizes, the largest being 25 inches long by 12 inches wide, drilled holes in them for the bolts, and proceeded to fix the plates on the boiler with three-quarter-inch bolts, and set screws alternately, the bolt-heads being placed inside the boiler and the nuts in the fire-way. These were screwed up as tightly as possible, and then the holes for the set screws were tapped through both plates, and the screws tightly fixed in, so that when finished both plates were as close together as if forced by hydraulic pressure, the small portion of red lead used being forced out all round, there being little or nothing required between the plates. In this way the whole was fitted together, the bridge, bars, and face of boiler put in, the water turned on, and the fire started on August the 13th. As a test we turned out the other fire, and the patched boiler has since been doing the necessary work without the slightest signs of leakage or fracture of the joints from fire or pressure, and I feel quite convinced the patches will stand as long as any other portion of the boiler. The great point in patching boilers is to cut the injured piece clean out, so that the water comes in direct contact with the new patch, and not on the injured edges of the fracture.

It might naturally be supposed by some that the boiler had been neglected and never cleaned out; but this was not so. It has been the practice to run the water out of the boilers four or five times a year. The sediment was deposited on the bolts along the sides of the fire, and gradually extended across the boiler, forming a shelf or receiver for falling sediment from the top of the boiler. This was the chief seat of the evil. The sides were so thoroughly choked up that no water could pass through, while the passage from the return pipes along the bottom of the boiler and up the end to the flow pipe was perfectly clear—i.e., where the least amount of heat acted on the water.

The state of this boiler led to a thorough investigation of all the others, and we found more or less corrosion in all of them. One of Gray's tubular boilers was nearly choked in the same way. This was taken to pieces, and the bottom bars and ring were nearly full of sediment, which was at once cleaned out, the parts put together again, and the boiler refixed.

The question arises, How are we to prevent the furring of boilers? My employer (Sir Henry Peek, Bt.) suggested putting in Potatoes. This may answer in a small way, but I am of opinion that something different from Potatoes is required for an apparatus with two miles of piping. If the Trentham boilers were provided with four plug holes at intervals around the end, and a hand hole in the bottom, they might be easily raked out, the deposit dislodged and cleared away at any time. I should be glad to have the experience of others on the important question of the furring of boilers and means of preventing it.

The lumps of deposit removed with my own hands from the boiler in question were submitted to the Fruit Committee of

the Royal Horticultural Society. They filled five large boxes and weighed when dried within a few pounds of 5 ewt. I have been requested to submit them to the Scientific Committee, and intend doing so.

The water we are supplied with is from the Southwark and Vauxhall Water Company.—J. OLLERHEAD, *Wimbledon House*.

[This is a question of very great importance, and suggests that full provision should be made for cleansing boilers from the deposit that may accumulate. Defective circulation in boilers is no doubt often the result of furring, and few gardeners could have worked for eight days in a cylinder 2 feet 10 inches in diameter, and have done the cleansing and patching above narrated. We have inspected the work, and must say it was a wonderful performance; the deposit we have also seen, and some of it is an inch in thickness and as hard as flint. The boiler thus saved cost £160. But such a waste of fuel as furring involves, besides the risk of fracture, ought never to be incurred, and need not be if provision were made for supplying boilers with rain water, which should be collected in tanks for the purpose, where the ordinary spring or river water is unsuitable.—ED.]

HARDY PERENNIALS.

WHATEVER may have been the case elsewhere, the arrangements of ordinary flowering bedding plants about this neighbourhood may be pronounced a failure this season. They grew well and flowered well to the end of July, when the petals of Pelargoniums fell with the falling rain, and the colours of the Verbenas were washed out, leaving us rather too much of one thing. True, the lost colours are brightening up now with the returning sunshine, but the thermometer at the freezing point bids us remember that they must be short-lived. Amongst hardy perennials the case has been different. These have grown as well as ever, and the rain has only had the effect of making them last longer in beauty.

I will name a few of the best of those in flower now, and add that all may be relied on as perfectly hardy, they having passed through the trying ordeal of the last two winters unprotected.

Coreopsis pæcox is 4 feet high, of a bright but peculiarly soft yellow colour, flowers abundantly for three months, and stands a long time when cut, for which it is very suitable. This is, perhaps, the easiest to grow of all the herbaceous species of this genus. *C. lanceolata*, which was figured in the Journal a few weeks back, is perhaps more beautiful in its individual flowers, but its season is not so prolonged as the first named. *C. auriculata*, nearly out of flower now, is also good and distinct.

Monarda didyma is 3 feet high, its flowers and leaves being Bergamot-scented, but it is past its best, though the colour of its scarlet flowers appears to have been caught by the edges of its leaves, and consequently it is not altogether without beauty as well as perfume. *M. mollis*, taller, with lilac-coloured flowers, is rather later and is still beautiful. Another variety which I have under the name of *M. purpurea* (this and *Vallota purpurea* were presumably named by some botanist afflicted with colour blindness) is nearly pink and is still in flower.

Centrocampa grandiflora, syn. *Rudbeckia fulgida*, is a beautiful plant which flowers all through the summer and is useful for a variety of purposes. I have it in circular masses of 5 feet diameter on the grass, in smaller patches dotted amongst Purple King Verbenas, a patch here and there at the edges of shrubberies, besides being freely intermixed in the herbaceous borders. It looks well in each of these places, and I have never heard anyone say there is too much of it. Its flower stalks grow about 18 inches to 2 feet high, while its foliage forms a dense carpet close to the ground. Its flowers are $2\frac{1}{2}$ to 3 inches across, the centre of which is raised in a half-globular form, is dark brown, and forms a perfect contrast with its bright yellow petals, which are not set close enough to please a florist, but are perfection in the eye of an artist. It is not too much to say that in beauty this plant is equal to the Japan Anemones, while its season is three times as long.

Amongst Asters or Michaelmas Daisies there are a great many weeds which, by some unaccountable stretch of the imagination, some people will persist in calling beautiful, but which find no home amongst my selection. There are, on the other hand, amongst them some of the most telling border plants we have, and I think at the present time there is nothing more beautiful than *Aster pendula*, which I have also received under the name of *A. patens*. This grows 4 feet high, has bright lavender-coloured star-shaped flowers, produced in such abundance as to completely cover the foliage on the upper part of its stems. The petals turn down-

wards after they have been expanded a day or two. *A. longifolius formosus* is a dwarf plant about 2 feet high, just showing its beautiful rosy lilac flowers, which will continue till the frost cuts them off. *A. Amellus*, almost a bright blue and only 18 inches high, is probably the flower amongst Asters which most people would select as the best; it is indeed very pretty, requires little or no support, and is useful for both borders and late autumn beds. Another variety called *A. Amellus bessarabicus* has larger flowers with more purple in them. *A. amelloides* closely resembles the last-named, and is not required where the two others are grown. *A. rosmarinifolius*, 1 foot high and lilac-coloured, is useful because of its dwarf and rigid habit, as is also *A. hyssopifolius*, which is about the same height, nearly the same colour, but distinct in growth, having a light airiness about it such as few dwarf plants possess. *A. ericoides* is scarcely in flower yet; it grows 4 feet high, has small white flowers produced in great abundance, which are useful for cutting for the purpose of lighting up heavier-looking flowers. *A. dumosus* is a dwarf-growing variety, about 2 feet, with similar flowers to the preceding and a spreading habit. These are the best of the Asters in my possession which are flowering now; other good forms, amongst which is *A. grandiflora*, are too late to be of much service.

Of Achilleas, the best, *A. Ptarmica flore-pleno*, a small double white one 2 feet high and invaluable for cutting, is almost over, but *A. ageratoides*, 3 feet high, also white but single, and with handsome serrated foliage, is not an unworthy successor. *A. Eupatorium*, 4 feet high, with Artemisia-like foliage and Golden Cauliflower-like heads of bloom 4 inches across, is very distinct and good; while *A. egyptiaca*, as well as having similar heads to the preceding, has a base of silvery foliage which forms a most pleasing contrast to the flowers. This plant is dwarf, scarcely exceeding a foot in height.

Most Veronicas are over, but here are two which are pretty in the background. *V. exaltata* is rather too exalted perhaps for a small garden, being 7 feet high, but the blue spikes are very conspicuous behind other plants and about 9 feet from the walk. *V. virginica* is not quite so tall, has white flowers, and is a good companion to the former.

Physostegia speciosa is even taller than the Veronicas, and has pink Salvia-like flowers, which are pretty in a suitable position.

Further back than the last-named plant, not because it is taller, but because it is more massive, is *Polygonum Sieboldii*, with its white feathery-like flowers and handsome foliage. This plant is scarcely suited for an herbaceous border of limited extent, as it requires much room, and notwithstanding its beauty it becomes a troublesome weed if not closely looked after. It is suitable for a semi-wild shrubbery or to plant by itself on the grass. We have here broken the line of shrubs by making a special recess for it, and the result is satisfactory. *P. Brunonis* is a very different plant, growing close to the ground and producing pink spikes of flower 9 inches high. *P. viviparum*, another dwarf species, though not particularly beautiful, is interesting from the fact of its seeds vegetating on the plant.

Colchicums are now fine. *C. byzantinum* is particularly showy, and *C. speciosum* has beautiful flowers as large as a Tulip. Other good sorts are *C. autumnale album*, *C. autumnale plenum*, *C. autumnale album plenum*, *C. autumnale striatum*, and *C. autumnale variegatum*. The blue Eryngos are still good, *Eryngium amethystinum* being the showiest; but *E. falcatum* and *E. Bourgati* are both worth growing. *Sylphium trifoliatum* is a very handsome yellow Sunflower-like plant about 6 feet high, and *S. laciniatum* has reached an altitude of 12 feet, but is by no means so handsome as the first-named species.

Other good plants in flower are *Chrysocoma Linosyris*, 3 feet, yellow; *Sedum Fabaria*, 18 inches, opening pink and getting darker afterwards; *Tradescantia*, 2 feet, in variety blue, purple, and white; *Lobelia syphilitica* and *S. syphilitica alba*, 2 feet; *Chelone obliqua*, or "Turtle Head," lately figured in the Journal, and its white variety *C. obliqua alba*, both about 3 feet; Japan Anemones, three varieties, too well known to need description; *Pyrethrum uliginosum*, a 6-foot Marguerite of great beauty; *Solidago* in variety; *Harpalum rigidum*, 4 feet, yellow; *Gaillardia hybrida*, 3 feet, yellow and brown; and *Origanum sipyleum*, the pretty little Hop plant with pink flowers.

Only a single spike of *Crocus aurea* is visible; the root producing this was possibly planted deeper than the rest and thus escaped the frost. A tall variety of *Eupatorium purpureum* annually rises to the height of 12 or 14 feet, and is handsome in the background. *Hyacinthus candicans* withstood the frost and has flowered well, being nearly over now. *Aconitum autumnale* is later than usual and scarcely showing colour yet, and *Phygelius capensis* was so hard cut back by the frost that it has not flowered much.

In addition to the above and some others of minor importance we have a variety of Phloxes and Pentstemons which, taken altogether, make a very interesting collection of hardy autumn flowers.—WILLIAM TAYLOR.

STRAWBERRY-GROWING IN COLD AND NORTHERN LOCALITIES.

It were well if cultivators who give their experience to the public by means of the press would indicate what climate and in what latitude they practise; for it often happens that those who imitate the published practice of others fail, not because the teaching has been wrong, but because of altered conditions demanding different courses to ensure success. We garden far north, where the "mists" occasionally cause the rain-gauges to indicate a rainfall of more than an inch a day, and where people boast of an early harvest when the corn is in the stack-yard by September. Here Spinach must be sown by the beginning of August, and Onions at the end of July, in order to have them strong enough to winter well; and Gooseberries, in seasons like this, are plentiful at the middle of September. To be sure, this has been a particularly cold and sunless season, but even in the best of seasons things here are in their prime after those in more favoured localities are over. The consequence of all this is, that we are obliged to adopt modes of culture which in more favoured positions might not only be unnecessary but unsuitable.

Like most gardeners we are ambitious to have everything in the best condition possible; but to succeed we have had to "invent" new modes of cultivation, and having departed from ordinary cultivation, and thereby succeeded more than is usual in the cultivation of Strawberries, we think not a few of your readers may find something to interest them, and possibly something profitable, in the following mode of growing Strawberries in cold and northern localities.

We ought to premise that our soil is poor and thin. Now soil poor and thin is not the best soil for Strawberry-growing; therefore in preparing our soil we do something towards deepening and enriching it. Most of it is now two spades deep: when we first dug it, it was only one. In preparing it, we trench it to the bottom and place a liberal allowance of manure between the layers of earth. The last layer of earth is the shovellings from the bottom of the trench, and is new soil manufactured as stated below, but as it is rather poor we put a good layer of manure under it. It is trenched in autumn, and during hard frost we spread another layer of old hotbed manure over the surface, and with a fork incorporate the new soil and new manure, for nothing we find surpasses new soil and new manure for Strawberries and Potatoes. We say, "and Potatoes," for such soil has to be prepared further than merely trenching, manuring, and forking it. Such soil if planted with Strawberries in autumn is too loose to hold the plants properly, and also too rich where the sun so seldom shines, but where the rain keeps everything cold and damp. Spring planting we consider a waste of time and ground, and here it is not at all suitable, as plants put out in spring do not fruit, but on properly prepared soil grow too strongly to be fruitful. Autumn planting, on soil prepared by trenching and cropping with early Potatoes, we find very successful as far as the Strawberries are concerned, and the Potatoes are always a large crop when plenty of room is given them.

Now is the time to prepare the soil, for it must be firm. More failures, we believe, arise from planting Strawberries in newly dug-up soil than from any other cause. Those who intend making new plantations next year, but who trench and plant at once, we advise to try our plan and prepare now.

In manufacturing new soil, as hinted at above, a few inches depth is pecked up—it is very hard and rusty—and a layer of manure is placed over it loosely. Out of the soil the rain washes the rust, and into it the manure, and when thrown by-and-by to the top, manured, forked, and exposed, it makes grand soil for Potatoes, and the Potatoes prepare it for Strawberries. After the Potatoes are lifted the ground is merely pointed over with a fork and cleaned, and is then ready for the new plants. So much for the preparation of the soil—an important matter; now for a word on the preparation of the plants.

Autumn—that is, September—planting for newly detached runners which have been trodden on and pulled about in the gathering of the fruit on the parent plants, and which are nearly rootless, will not do. Plants starved and stunted, turned out of 3-inch pots with their roots coiled and wiry, will not do; at any rate, such are not the best by a long way. We prepare ours partly on a shady border, partly in frames, when such can be spared, which too often they cannot. However, a shady border and rich soil (half soil, half decayed manure) give excellent results.

Runners obtained from the earliest plants, before trampling begins, and just as they push roots, dibbled rather closely into this, sprinkled with water and shaded if need be, make fine plants by September that can be lifted with balls of roots as big as 6-inch pots if need be, and with uneramped roots, strong leathery leaves, and fine plump crowns, which are considerably superior to the 3-inch-pot nurslings.

The slight check they receive in lifting does them good. It stops them, hardens them, and makes them extremely fruitful. When the Potatoes are off soon enough—say in July—the trouble of the second planting may be saved, especially if showery weather prevail. That cannot be ensured though, and so, all things considered, we find plants prepared as we have advised best.

We plant them a foot apart in the rows, and 18 inches between the rows. This is twice as thick as they are ultimately thinned to; but by so planting them a full crop of large fruit is had the first season, and when this is gathered every alternate row is hoed out. After the frosts of winter come we mulch the ground with manure. The rains wash in the strength of this and render the supply of liquid manure unnecessary. In the sunny south it may do good: here it only causes sterility by inducing overluxuriance.

We allow the runners to grow. Our permanent rows are 3 feet apart, and the second year we allow young plants to root and develop themselves among the decaying mulch, for young plants produce the finest fruit. We dig between the rows, and do not find that the roots are injured; but we find it much easier than hoeing, and raking, as is frequently done, half destroying those that remain in the process. We have also tried keeping the first plants isolated, as is often recommended, but do not find it worth the trouble—the encouragement of young plants giving better results.

The second year's crop is generally very large, and, on our soil, is the best the plantation yields. There is not room the second year for further extension of the rows in breadth, but by that time the food supply is beginning to fail; the flush of their growth is past; they grow moderately, and so on the old plants set hard buds freely. In winter we top-dress the whole by riddling fine decayed manure over them, and this enables them to perfect another good crop, when down they go.—A NORTH BRITON.

SEASONABLE NOTES.

DRYING ONIONS.—"A KITCHEN GARDENER," at page 238, gives some seasonable remarks on the harvesting of Onions, which no doubt will suit numbers of your readers who are similarly situated to your correspondent. However, there are doubtless others who, like myself, would never save an Onion by the process named. In our district the ground is generally saturated by September, and we think it early when our Onions are fit to pull then. The bulbs are spread out in a Melon pit when the soil is dry, and through which the wind is allowed to whistle. When the air is saturated a little heat is kept in the pipes. A vinery from which the fruit is cut is also a good place. Coolness and dryness are essential, and if the Onions are spread in a close and warm structure they will be spoiled.

DIANTHUS NAPOLEON III.—We notice some writers who recommend this very useful plant state that it is not easily kept through the winter. One says that in order to keep it he lifts and places the plants in a frame. Striking cuttings, which become plentiful in autumn, and keeping them as ordinary Pinks are kept, we consider a better plan, as young plants give much better results than an old one. Ours propagated thus, and planted out in April in liberally manured soil, are still (Sept. 20th) blooming. We know of no other plant that will give such a number of flowers from the same space and over such a period as will this. It ought to be of extreme value for market purposes.

PROPAGATING VIOLAS.—Violas are in a large number of cases, perhaps in the majority, very badly treated. They are generally propagated too early and in much too sandy and poor soil, and unsuitable cuttings are employed. If growers would have a little patience until the cool moist nights come, and then pull off the springing shoots when they are about 2 or 3 inches long and have small roots at their base, and then plant them in frames (or boxes to be afterwards placed in frames), employing rich soil, instead of taking rootless cuttings and planting them in poor sandy soil, they would be astonished at the results. Dividing the old plants in spring we only mention to condemn. Violas in frames should not be coddled, it weakens them. The lights should only be used during hard frost, and to keep off rains. They should be planted out on thoroughly dug and enriched soil not later than

April even in the far north, and earlier south. Planting them along with the rest of the bedding plants in May means failure even where *Violas* are at home. In dry warm districts it effectually deprives the plants of the last chance of thriving.—PRACTITIONER.

MRS. PINCE'S BLACK MUSCAT GRAPE.

WE have this Grape here in a cool greenhouse growing side by side with the Black Hamburgh and other sorts. It keeps good time in the ripening process with the Black Hamburgh, and its flavour is little short (even at this early period) if not equal to that of the Muscat of Alexandria. I would strongly advise intending planters when the season for that operation comes round—say the month of April; I have planted successfully as late as the 15th of May—not to omit this excellent Grape in their collection, however small, or for whatever purpose the Grapes may be intended. I have an opinion that this variety will some time or other supersede the not unfrequently much-overrated Black Hamburgh, more especially if required for a late purpose and the season happens to be wet and very cloudy.

I trust your correspondents will not be behind in recording their experiences regarding suitable varieties of Apples, Pears, &c., in the Journal during the next few weeks, for the planting season is fast approaching, and many sorts have been well tested this season, it being a more fruitful one than the past two or three years, at least in this part of the country.—W. H. C., *Tunbridge*.

LESSONS OF LIFE FOR YOUNG GARDENERS.

MR. PETTIGREW in his remarks on this subject makes use of the following:—"There is now, and there has been for forty years, greater difficulty in finding first-class gardeners than there is in finding first-rate places for such." If that is the case how does he account for the great number of really good gardeners who are at all times seeking situations? I am aware that some are successful in obtaining good situations, but I am inclined to believe that more places are secured through influence than from real merit. We need only to look at our nurseries to see the number of men out of employment, and surely they are not all second and third-rate men. I am sure Mr. Pettigrew could find many first-class men in the various nurseries who would be truly grateful to him if he could assist them in their efforts to obtain a good situation, and men who would give him no cause to regret having recommended them.

Another point I notice is the encouragement held out to young gardeners. Mr. Pettigrew asks us to look for a moment at "the comforts of a gardener in a good situation." I willingly admit that a gardener in a good situation has, as our American cousins would say, "a good time;" but what about the unfortunate gardener in an indifferent situation? what are his comforts? Comforts they are, if comforts consist in an unwearying endeavour to keep the place neat and clean with about half the strength that is necessary, and endeavouring to make the garden pay by what he can dispose of after the house is served. Ladies and gentlemen wish their gardens well kept; but I unhesitatingly assert that they do not in many cases spend their money in the free and ungrudging manner described by Mr. Pettigrew. The gardener has greater responsibilities than any other servant, and, as a rule, he is the worst paid. Let ladies and gentlemen pay their gardeners a fair wage, and they will have no cause to complain of their gardeners' abilities. Again, let the gardener without influence to back him up lose his situation; he will find, as many know to their cost, what an uphill battle he has to fight before he can again obtain a really good situation—perhaps many months, and sometimes years, in a nursery before he can succeed in securing what he wishes. I think it only fair that young gardeners commencing life should see the dark side of a gardener's life as well as the rosy prospect held out to them by Mr. Pettigrew. I believe it would induce many in their first, and what perhaps is a comfortable situation, not to give it up because something goes wrong and they fancy their employers are unjust to them. Many do this, and live to regret it afterwards.—CANTAB.

BEGONIAS FOR BEDDING.—No bedding plants survived the rough weather we have been having lately better than the tuberous-rooted Begonias, and as some gardeners may benefit by my experience with them I will state it briefly. About the end of September I take up the plants and place them in a cool airy shed after the tops have withered. Most of the soil is removed, and they are placed close together in boxes and kept in a cool dry place free from frost for the winter. About the end of March

remove the old soil from the tubers and place them in fresh soil about 4 inches apart in the boxes; transfer them to a cool frame, and when the shoots appear through the soil ventilate freely, removing the lights, but afford protection from frost and cold rain. Planting can be done about the 1st of June. The most suitable edging for the beds is *Polemonium coeruleum variegatum*.—A. R. T.

SCRAPS ABOUT FRUIT.

I HAVE often thought if amateurs and gardeners throughout the country were to send you scraps of matter relating to fruits, that much interesting and useful information would be collected. There are a number of cultivators who, because they cannot send an exhaustive article on a given subject, do not send at all. But do not they pass by matters and incidents that, although they appear small in themselves, may, if recorded, be productive of good results? I think this must be the case, and that a great mistake is made by many persons in not giving sufficient attention to what they deem trifles, or small isolated facts. The other day, for instance, I went into a large garden and was pointed out the difference between the flavour of a Pine-Apple Nectarine that was gathered as soon as it was ripe, and another that was showing signs of shrivelling. The gardener, a most competent man, said—"As a rule Nectarines are gathered too early." "Why, then," I replied, "do you not tell the world so through the Journal?" (which I saw in the fruit-room). "Oh," was his response, "they all know that." Now here, I think, is a great mistake. It is assumed that "we all know that" as regards the points, peculiarities, and adaptabilities of all kinds of fruit, and hence nothing is told, when at the same time a thousand people would accept with gladness a hint or a little scrap of information that could be so easily imparted.

Then we came to some trees of Small's Admirable Apple laden with fine fruit. "This Apple," said my friend casually, "always bears best from the ends of the shoots, and those who shorten them much are not likely to have much fruit." My prompt and unrestrained expression was—"There you are again! This is another of the 'all knows,' when, I believe, not half of the amateurs in the country have the fact impressed on their minds. Why don't you write about it?" "Write about it!" he slowly remarked, evidently pitying my simplicity; "I should not like to put my name to a common matter of that kind." "Well," I replied, "never mind your name, send the facts with your name privately, and leave the rest to the Editor. We want your experience and will do without your name, good as it is; and if you can now and then send scraps, simple items in your estimation, they would be of much service to others." He promised to "see about it," and I think this means he will comply with my request. But as a rule I confess I do not like "see abouts," but I *should* like to see some common scraps of fruit lore in the columns of the Journal. I have a collection of trees just coming into bearing, and may help a little if only as a slight return for the trouble that has been taken on my behalf in the naming of fruits that I have occasionally sent to the office, and herewith send six more.

If you think, Mr. Editor, there is anything in my suggestion pray print the letter; if not, burn it without compunction; you know best. I am not thin-skinned, or I should never do for—A COUNTRY SURGEON.

[We are not likely to burn such a letter as this, and the best assurance we can give that "scraps" of experience are acceptable is by publishing some that we have received this week in this column, instead of inserting them as we intended in "Notes and Gleanings." We think there is something "in" our friend's suggestion, and shall be glad to see what comes out of it.—ED.]

FORMAN'S EXCELSIOR STRAWBERRY.—"AMATEUR" wishes to have the opinion of one who has tried this Strawberry. I have grown it for a few years, and can speak with confidence respecting it. It has bright green foliage, is of dwarf habit, and retains its greenness through the most severe weather. The fruit is oval-shaped, of large size, pink throughout: flavour excellent, and for a dessert berry is unrivalled. It thrives well in poor soil. For further opinion see Mr. William Boyce on Strawberry culture in "Cassell's Family Magazine" for September, 1881.—GEORGE KENDALL, *Louth*.

I NOTICED in your number of September 15th an inquiry by one of your correspondents as to the merits of Forman's Excelsior Strawberry. As the fruit is a "native of Louth" I may be likely to know a little of its worth. The fruit is very large, often measuring 9 to 11 inches in circumference; fine, dark, rich colour, good flavour, and, taking it altogether, very captivating. The

plant is very hardy and prolific. My friend Mr. Forman is justly proud of his offspring, which gained the first prize at the Nottingham Show, and also a first-class certificate as a new variety.—HENRY BOOTHBY, *Louth*.

STIRLING CASTLE APPLE.—It is stated on page 261 that "this is probably the finest and most useful late autumn and early winter kitchen Apple in cultivation." This is high praise, and probably not a few readers would like the soundness of it tested. It appears to me the best way of doing this would be for those who consider they have a more valuable culinary Apple in use, say from October to Christmas, to name it, and point out its superiority. If after this test the claims of Stirling Castle predominate, it then follows that everybody must plant it. Will those of your readers who have fruited Cox's Pomona kindly give their opinions respecting it?—F. D.

JERSEY GRATIOLI PEAR.—This variety is not often recommended to the notice of cultivators, yet I find it a distinct and excellent October Pear. The fruit is roundish, of good size, very juicy and melting, and delicately perfumed; it, however, does not keep long after it is ripe, especially where there are children about, as in my case. I think one tree at least should be included in all collections, particularly as it grows well and bears freely. What can be the origin of the peculiar alliance of "home and foreign" names of this Pear? This always strikes me as being singular.—A KENTISH CURATE.

INTERNATIONAL POTATO EXHIBITION.

IN consequence of the large amount of work on the opening day of the International Potato Exhibition it was found impossible to give proper attention to the seedlings submitted for certificates and prizes; but the matter was taken in hand immediately afterwards, and is still in progress. As about one hundred sorts were entered in the four classes for seedlings, a certain length of time must elapse ere they can be reported on. However, as regards Classes Q, for white kidney, and S, for white round, the following awards have been made, of which Mr. Shirley Hibberd obligingly sends the appended descriptions:—

Magnet.—A very handsome narrow white kidney, of exquisite texture and flavour, presenting a most elegant appearance on the table. Sent by Mr. Charles Ross of Newbury. First prize in Class 2 and first-class certificate.

Kentish Invicta.—A handsome broad white kidney, resembling (as shown) the best type of Magnum Bonum. It is, however, far superior in quality to that variety; the texture fine, the flavour full but delicate, and the appearance on the table elegant. Sent by Messrs. Lott and Hart, of Faversham. First-class certificate.

Lady Truscott.—A neat white smallish round, spherical, much netted; flesh white, fine in texture; the flavour delicate, buttery, gratifying; the appearance on the table all that can be desired. First-class certificate.

Fenn's No. 3 Early White Round.—A very neat and handsome round of fair size, pebble-shaped; eyes few and even with the surface; flesh white and fine in texture; flavour remarkably good. First prize in Class S, and first-class certificate.

HOW TO KILL THE PEAR SCALE.

WILL you kindly republish a paragraph that appeared in the *Cottage Gardener* fourteen years ago on this subject, and ask your readers for any experience they may have had with boiled linseed oil for this purpose? A friend tells me he has used it for scale on a Peach tree and on a Stephanotis with good results, but I have no personal experience in the matter.—WM. TAYLOR.

[The following is the paragraph referred to—

"What could induce you to publish that tremendous receipt for killing, not the scale only, but gardeners also? Picture to yourself the gardener's face growing longer and longer as he reads that 'he is to unvail the scale-infested tree, scrub it all over two or three times, next wash it with a solution of soft soap, then dress it all over with a nasty composition, working it into every hole, angle, or crevice.' None but a man in command of an army of painters as well as sub-gardeners could attempt to execute such a formidable receipt.

"Try the following plan—Paint the tree all over with pure boiled linseed oil in January or February; avoid oiling the bloom buds if you can—it is, however, of no great moment. This is a thoroughly efficient measure, and comparatively easy of execution. No erratic scale will crawl upon the polished branches. My gardener had seen this method employed years ago with great success, and he persuaded me to allow him to make a trial of it. I said the oil would smother the tree. He said the tree would rather like it than otherwise. Two upright-trained Pear trees on the Quince stock were operated on in February last. One tree had only the lower portion of the cordons oiled, the upper part being coated with the usual horrid composition; the other tree was oiled all over. When I saw it shining like polished mahogany I thought it was indeed all over

with it. At this moment both the trees thus operated upon are in better health than they have shown for years. One is bearing an excellent crop of fruit, the other is more luxuriant than is consistent with fruitfulness; but it is 'all over' with the scale."

We shall be glad to have the experience of any of our readers who have tried the above remedy.]

DAHLIA GLABRATA.

VERY different from the Show and Fancy types of Dahlias is this graceful species, which with other single forms is now rapidly rising in general favour as a pretty garden plant, and one which affords a bountiful supply of flowers suitable for cutting. The brightness and elegance of these render them very useful for



Fig. 47.—*Dahlia glabrata*.

decorative purposes at this season of the year and until the frost affects the plants. The colour, too, a light mauve tint, is very delicate, and with the exercise of taste some very pleasing combinations may be arranged for vases and other table ornaments.

Dahlia glabrata requires similar treatment to the other forms of the genus—taking the slender tubers up in late autumn and storing them in a dry cool position secure from frost. Light rich soil is required, and few stakes to keep the plant neat and compact is almost all the attention specially needed.

EARWIGS AND PEACHES.—Earwigs are destroying many hundreds of Peaches here on trees against walls. The means we

employ to destroy these pests is placing Broad Bean stalks between the branches and the wall, about a dozen in a tree, searching them every morning. These insects are easily dislodged from the Bean stalks by blowing them into a bottle half filled with water.—G., Kent.

A WEEK IN LONDON.

HAMPTON COURT.

THIS was the next place visited, and a truly grand place it is. The Palace alone is worth a long journey to see, and thousands do not know that this magnificent pile stands on eight acres of ground, having six acres of foundations and ten of roofing, six being covered with lead and four with tiles. But it is not my intention in these notes to deal with the Palace or any of its many historic associations, but of the bedding and other subjects of horticultural interest. The famous old Vine is again bearing a heavy crop of fruit, but showing signs of exhaustion, and one of the uppermost branches will in all probability die this year. It is a pity this interesting old Vine should be so confined for room. Carrying a heavy crop every year with a very restricted growth is sufficient to exhaust it. I do not think the roots of this Vine can reach the Thames, as has been frequently stated. I am given to understand the greater quantity of the roots must be in the border at the front of the house, as when this border is watered during dry weather the effect is soon discernible on the foliage of the Vine. Outside the vinery is a grand old plant of *Wistaria sinensis*, covering a wall 130 feet long and 25 high, but, like the Vine, is restricted, or would undoubtedly have travelled a very long distance.

Leaving the vinery I visited the promenade in front of the Palace, which is fully three-quarters of a mile in length and broad in proportion. A finer walk is seldom seen. From this promenade is viewed a long subtropical border on the side of the Palace more than half a mile in length, and admirably suited to the position. On the opposite side, and running the whole length of the promenade, is the bedding for which Mr. Graham has become so noted of late years. From this point there is a grand view of the three avenues of Elms, which have been planted in double rows on each side. The centre one is most commanding, with the stately trees and canal of water passing down the centre, which is 41 yards wide, and terminates with a fine view of Surbiton. The grounds contain some fine old Yews, which form avenues, and to some might present a gloomy appearance, but they look grand and contrast well with the brilliant colours of the Pelargonium beds.

The bedding this year is all that can be desired—in fact the carpet beds are not surpassed in neatness and beauty by any I have seen. I had concluded that carpet beds were rather unpopular after reading so much against the system, but let the lovers of hardy flowers go and see for themselves. They should watch the herbaceous border or any of the other beds as well as the carpet beds, and see which the people flock round and admire. I am fully convinced that the carpet beds are the most popular. In spite of this Mr. Graham adopts a wise course, and varies the style of bedding as much as possible, and therefore gratifies a great number of tastes. Those for whom the carpet beds have no charm can turn to the beds of fine-foliage plants or to the mixed beds. One of the most striking of the latter contained *Abutilon naviium maculatum*, *Verbena venosa*, and *Iresine Lindenii* intermixed and edged with a broad band of the latter. This was a simple but an imposing bed which must retain its beauty until late in autumn. Violas are largely used mixed with gold and silver tricolor and bicolor Pelargoniums, and produce from a distance a very pleasing effect. In nearly every case the Pelargoniums are planted thickly, so that if a dry season follows and the Violas fail early there is no blank in the beds. If, on the other hand, the season is moist and they grow luxuriantly, then they can be kept in due bounds with the knife. A silver-leaved Pelargonium with *Viola Blue Bell* and edged with *Cannell's dwarf Ageratum*, formed an effective bed in this style. The *Ageratum* is a fine bedding plant, not growing more than 2 to 3 inches high, and is covered with bloom. To keep it neat the strong growths from the collar must be removed as they appear. One bed has a centre of Mrs. Pollock and Sophie Dumaresque Pelargoniums, carpeted with the *Viola Favourite* and edged with *Iresine Lindenii* and *Euonymus radicans variegatus*. Another example included a scarlet seedling *Verbena*, a fine flower and a bold eye, very much like *Crimson King*; *Alyssum maritimum variegatum*, *Cineraria maritima*, and *Viola Blue Bell*, with a few plants of *Viola Tory*, and edged with the dwarf *Ageratum*. This bed was very striking from a distance, and presented a very peculiar and yet pleasing shade of colour. Other mixed beds were formed of different

Roses; for example, *Souvenir de la Malmaison* with scarlet *Verbenas*, with a band of *Pelargonium Vesuvius* and edged with *Artemisia gracilis*. It would occupy too much space to enumerate all the beds, and I shall only mention one more before passing to the carpet beds. This was composed of *Pelargonium Henry Jacoby* edged with a band of *Black Douglas* and *Alyssum saxatile variegatum*. The *Pelargonium* is a very fine bedding variety, having large dark crimson trusses of bloom, which rendered it the most conspicuous in the grounds.

The most attractive carpet bed was an oblong with three raised figures in the centre. The centre figure was an oval of *Pachyphyton bracteosum*, the lines being marked with *Echeveria secunda glauca*, having between the two a narrow band of *Alternanthera*. At each end were two small figures of *Leucophyton Brownii*, and then follow the other two raised portions, one at each end, of *Sempervivum montanum*. On each side of the central figures are two others formed of *Alternanthera magnifica*, with another band on each side exactly opposite of *Leucophyton Brownii*. The corner figures, four in number, were filled with *Abutilon vexillarium variegatum* in splendid condition. Between these a small circle at each end was filled with *Alternanthera versicolor grandis*. A narrow band of *Mesembryanthemum cordifolium variegatum* running through the whole of the figures described completes the design, except the edging of *Echeveria secunda glauca* and *Sedum glaucum* intermixed. This was a very beautiful bed, the design being excellent, and the colours most tastefully blended. There were other large oblong carpet beds with various designs, and differing widely from the one described both in appearance and the plants employed. In some cases the groundwork was formed with *Mentha* and in others of *Herniaria glabra*, a close-growing green plant much neater than the *Mentha*. This is without doubt the finest green plant used for carpet bedding, and it is perfectly hardy. *Alternanthera paronychioides aurea* is a great acquisition in this class of plants, and it was used in several designs with great taste and judgment. Some circular beds were really splendid, one forming a double Grecian cross with a circle in the centre of *Pachyphyton bracteosum*, the cross of *Alternanthera paronychioides major*, the remaining portion of the bed being *Mesembryanthemum*. Another circular bed in close proximity to the above had figures somewhat in the shape of anchors formed with *Abutilon vexillarium variegatum*, the groundwork being of *Alternanthera* with four raised mounds of *Echeveria Peacockii*, a very striking species. Mr. Graham values this very highly, and is increasing his stock as much as possible. No doubt this will when it becomes plentiful take the place of the popular *E. secunda glauca*.

I shall leave the bedding at this well-kept place without further reference to any of the many attractive beds, but before doing so must thank Mr. Graham for his kindness and courtesy to me, at the same time congratulate him on his success in flower-garden decoration, and I consider he well deserves the high compliments which have been paid him from time to time.

Before leaving the grounds I inspected the fine avenue of Horse Chestnuts in Bushy Park; they are grand trees, and must present a beautiful picture when in flower. This avenue is a mile long, and the Chestnuts are the finest I have seen. This day horticulturally was brought to a close by inspecting the old

KITCHEN GARDEN.

This is managed for Messrs. T. Jackson & Son, Kingston-on-Thames, by Mr. Latham. The garden is very extensive, and contains a good quantity of glass; in fact some twenty men are employed in these gardens. The ground was well cropped with the best of vegetables, and large squares were devoted to *Seakale*, *Asparagus*, and *Strawberries*. I noticed on a border in front of one of the houses some *Tomatoes* planted out and trained upright to stakes; the plants were bearing a large crop, the bunches of fruit hanging like ropes of *Onions*. At a rough calculation I should say there was fully a ton of fruit, all the chief large-fruited varieties being grown; one called *Large Red* was carrying the heaviest crop. The walls are covered with old fruit trees, which had formerly the spurs a great distance from the wall; they have now been well cut back, and good crops of fine fruit are produced close to the wall. The vineries are rather numerous, and some of the Vines are very old, but were carrying heavy crops of good average fruit. In one house some young Vines planted three years were fruiting well and growing luxuriantly. Hundreds of young Vines in pots were growing in a span-roofed house, the canes being good and the eyes plump. Several houses are devoted to *Peach* and *Nectarine* trees, which are planted across the house about 2 yards apart and trained fan-shaped to upright wires. More fruit is obtained by this method than by planting at the front of the house as is general. The only doubt I entertained was

about the fruit colouring, but was informed that it had been quite satisfactory in that respect. Melons are largely and well grown in pots, the only artificial heat the plants have being that from the bed of leaves on which they are planted.

The produce of two varieties of Potatoes that had just been dug is noteworthy—namely, Mammoth Pearl 438 lbs., and Matchless only a few pounds less; the former is a large and somewhat irregular tuber, the latter more symmetrical, being of the shape of Paterson's Victoria: 14 lbs. of each were planted, and grown in the ordinary way. Both these Potatoes are of excellent quality.

Abundance of produce is secured from this garden, and the various departments reflect the highest credit upon the manager.—A COUNTRYMAN.

(To be continued.)

TOMATOES AT THE MANCHESTER EXHIBITION.

I HAVE been very interested in the full report of the above Show. It was not my fortune to see what must have been a grand exhibition; and I do not wish to find fault with my award, but I think for the guidance of exhibitors the awards should be explained. Good medium-sized, but perfect specimens, of the three kinds of Tomatoes were sent, and I gather from various sources mine were considered the best. I could have sent fruit double the size or even larger, as I had at that time fruit up to a pound in weight, but they were imperfect in form. I am informed that the fruits in the first and second prize collections were very ugly and much cracked.

At the Alexandra Palace last year I took the precaution to stage one dish of large but irregular-shaped fruit, which were passed over, and I obtained the first prize for a smaller but better shaped medium-sized fruit. This I take for granted is as it should be, as I should always suppose, unless otherwise stated, that beauty would stand before size. I expected there would be good competition at Manchester, but did not think even in the Tomato class that any dish would be overlooked; yet the awards surprised a few, and they were certainly misleading.

I see by the published official catalogue there were twenty-one entries in Class 58, of which I believe most staged; at least there were eighteen dishes staged, showing that the competition was good, yet in some of the gardening periodicals not the slightest notice has been taken of this class.

I am writing at a disadvantage, as I did not see what was exhibited, but hope these remarks will be received as written—not in a carping or grumbling spirit, but simply to elicit further information to guide myself and others in staging Tomatoes for competition.

Before I finish I ought to say, that although some weeks we cut over 1 cwt. of Tomatoes, yet I know how difficult it is to find a good dozen, so that great credit is due to the Manchester exhibitors.—STEPHEN CASTLE, *Manager, The Vineyard, West Lynn, Norfolk.*

AUTUMN PROPAGATION OF BEDDING PLANTS.

ON page 171 I wrote at some length upon the propagation of such plants as Pelargoniums, Iresines, Coleuses, Verbenas, and Heliotropes; and in continuation of those remarks I propose to offer a few hints upon hardier kinds, such as shrubby Calceolarias, Violas, and Echeverias.

Calceolarias.—These are not so extensively grown as of old, owing to their fickleness—many plants frequently inexplicably dying some time after being planted, especially should hot dry weather prevail, this giving the beds an objectionable appearance. Where, however, they do succeed they are very effective, and as they are easily propagated and wintered they should be grown in quantity. The cuttings may be taken any time during October, or even in November, but it is not advisable to delay propagating till very late in the season, as the young growth—which must be selected—is liable to be injured by early frosts. Owing to the long-continued showery weather cuttings are very abundant, and also rather too succulent. The preference should be given to flowerless shoots well exposed and of medium size, and these may be cut below the third joint, or if extra sturdy at the fourth joint, and one or two pair of leaves may be trimmed off, the cuttings being inserted up to the second pair of leaves. Two or more handlights, or a single-light or double-light frame according to the number of plants required, may be utilised, and are most suitable for them, a dry heat being especially injurious to Calceolarias. No bottom heat is required, but it is advisable to form a shallow bed—say 18 inches deep at the back with a slope to the front, with any half-decayed material, such as the linings of old hotbeds, on which to place the frames or handlights. In the case of deep frames more light rough material should be thrown in, the object

being to bring the cuttings near to the glass. Over this a thin layer of common soil may be spread, next about 3 inches of finely sifted light sandy soil, finishing with a thin layer of sand, and beating down firmly with the back of a spade. The handlights to be placed on after the bed is prepared. The cuttings should not be crowded, or those that are sappy especially are liable to damp off. They may be disposed from 2 to 3 inches apart, and the base of each should always touch the bottom of the hole made by a slightly blunt dibble. They should be watered-in, and kept close and shaded from bright sunshine till rooted, which in the case of those inserted early in October would be effected by the end of November; afterwards on favourable occasions, both by night and day, ventilate freely to prevent active growth at an unfavourable time. They will be unaffected by a slight frost, and should not be protected other than by the lights, unless severe frost is imminent, when in addition to mats or pieces of old carpets and similar protecting material, the whole bed and lights should be heavily covered with loose dry litter. If the plants be found to be frozen at any time sprinkle them with cold water, gradually exposing them to light when completely thawed.

Violas.—Unlike the preceding these are rapidly increasing in popularity, the yellow varieties indeed being excellent substitutes for Calceolarias. They are hardy, but to have them in perfection during the summer months it is advisable to strike and winter them in handglasses or in cold frames prepared as recommended for the Calceolarias. In most cases a number of short flowerless shoots springing from the base, and about 2 inches long, will be found, and these should at once be taken and dibbled in about 2 inches apart, and otherwise treated similarly to the Calceolarias. They will form roots readily during the winter, and become neat little plants fit for transplanting in April. Old plants are easily divided in the spring, but if allowed to remain in their present quarters will greatly impoverish the soil; and although plants obtained by division are the first to be effective they are the first to fail, especially during a dry season.

Echeveria secunda glauca.—These plants have long been extensively grown in large gardens, but I find amateurs do not understand their treatment, and this season several have asked for information on the subject. For "facing" the margins of beds filled with carpeting plants or otherwise they are as much in demand as ever, surplus plants being in great request. During a comparatively mild winter they will survive unprotected, especially if the position be a dry one; it is safest, however, to lift and store them away closely in cold frames or in shallow boxes and placed in a light dry position. The stock is generally increased by division; and at lifting time all the side shoots should be pulled off and dibbled in boxes or frames. Any light soil will suit them, and they should not be coddled—only protected from severe frosts, snow, and drip. Small pieces taken off this autumn will not grow to a sufficient size to be employed with the old plants next season, but may be planted in an inner line or a separate bed.

Various Plants.—Sedum glaucum is much admired when forming a groundwork in a carpet bed; it is hardy, and may be increased to a remarkable extent in the spring. Mentha Pulegium gibraltarica is not perfectly hardy, but a small quantity disposed in thin patches in cold frames, ventilated on all favourable occasions, and protected from very severe frosts, may be increased to any extent in the spring. Close thick patches are liable to damp off. Gnaphalium lanatum is now not much used. Cuttings may be struck and wintered in cold frames or handlights. Stachys lanata is a much more effective silvery-foliaged plant, is quite hardy, and easily propagated by division either in the autumn or spring. The old Gazania splendens is still worthy of cultivation. It is remarkably effective planted with Iresine Lindenii. Cuttings of young growth may now be taken, treating them in every respect similar to the shrubby Calceolarias; they will also strike in the spring with the assistance of a mild heat. I have omitted mention of the good old Verbena venosa. When the beds are broken up save a number of these with their roots entire; reduce the tops considerably, pack the plants away closely in shallow boxes, and place them in a cold frame. Give sufficient water to keep the long thick roots plump, as these if cut into lengths an inch long, dibbled in thickly in boxes, and placed in heat, will each form a strong plant by the time required.—W. I. M.

THE ONION AND CARROT MAGGOT.—The maggot in Onions and Carrots have been more abundant than usual this season. In this neighbourhood whole breadths have been entirely destroyed. The means I have taken to prevent it is when digging to give a good dressing of soot and lime if the ground has been trenched; lightly fork it in afterwards. When the season arrives for sowing

give a good dressing of soot and wood ashes, and with a wooden rake well work it in. After its being trodden and the drills drawn give another dressing, then sow the seed. I find wood ashes an excellent preventive against grubs of all kinds, as well as being a valuable manure.—H. L.

PEACH TRAINING.

SOME friends have been good enough to forward me copies of a paper containing further criticisms on my writings, and one of them in a note advises me "not to take too much notice of a critic, who is apparently more indebted than any writer of the day to the works of others;" and adds significantly that "if the said critic was confined to his own practice probably he would write much less voluminously, and I hope more usefully. It is pretty well understood amongst gardeners that those who are driven for subjects to the works of others have very little of their own worth writing about."

I would not trouble you again on this subject, but my critic, finding the system I recommended is not to be condemned, takes a fresh tack and accuses me of borrowing it from Thompson's "Gardeners' Assistant." Well, drowning men, we know, will catch at straws; but there is no straw here to catch at, for it so happens that Mr. Thompson recommends quite the opposite system—i.e., fan-training. So much for fast writing without thinking.

As I had the advantage of learning something about training from Mr. Thompson personally, and on his own favourite trees, my "ignorance" of the subject must arise from insurmountable natural causes, and not from the fact of having had no opportunities.

I do not wish to take up any more of your space with personal matters which are of no use to gardeners, therefore I will thank my friends to spare themselves the trouble of sending me any more papers in which I may have the honour to be noticed.—WM. TAYLOR.

NOTES ON CIRCUIT.—No. 3.

THERE is one great advantage that I have gained in my wanderings as a judge, that I come to know those with whom I have been long acquainted by their writings, and concerning whom I have often conjectured what manner of persons they were in the flesh. Amongst those writers of the Journal whose communications are always full of sound teaching and practical common sense are Mr. Pettigrew the gardener at Cardiff Castle and Mr. Muir the gardener at Margam Park. My visit to Cardiff to judge at their first Rose Show, of which I have already given some account, gave me the opportunity of making their acquaintance and of finding that I had not misjudged the writers. The cordiality with which I was welcomed by Mr. Pettigrew made my visit most agreeable, and when under his guidance I went through the grounds of Cardiff Castle I had a time of much enjoyment.

Cardiff Castle is well known as one of the seats of the Marquis of Bute, and who also owns the rapidly increasing town which has sprung into such importance in South Wales as the port from whence so much of the coal found in this portion of the United Kingdom is exported. The Castle is quite close upon the streets of the town, as in so many of our large feudal properties; and the grounds which surround it tend to take off the idea of dreariness which a town, however bustling it may be, must have whose chief export is coal. The Castle itself is a fine building, and large sums of money have been spent upon it by the present owner. Interiors have little interest for me, and I was therefore more concerned with the surroundings. The pleasure grounds are tastefully laid out; and on the Castle walls facing the south Vines have been trained up to a great height, and in this mild climate their crops ripen well. It is well known that the outdoor cultivation of the Grape has been specially tried by the Marquis of Bute, but as the vineyards are some three miles away I was not able to see them. The Sophia Gardens, comprising eleven acres, have been given as a recreation ground to the inhabitants and are well kept. The kitchen gardens comprise about eight acres, and I need not say with so experienced a gardener as Mr. Pettigrew are in excellent order. The amount of glass, however, is by no means commensurate with the requirements of such a house, and the houses are fewer in number and smaller than I have seen in places at all equal to it in importance. There are four vineries not large, a Peach house, a greenhouse, a plant stove, Pine stove, and eight Pine pits. There was a fine crop of Eastnor Castle Melon in one of the houses, and of the many candidates for favour in this fruit there are few which can claim superiority to this. It is an abundant cropper, and the fruit of first-rate quality. There,

too, was to be seen in great perfection the Cucumber of which notice has been taken in the gardening papers lately—one of Mr. Pettigrew's own raising—Cardiff Castle, and a most valuable variety it is, producing large quantities of fairly sized fruit, well shaped and of good quality. What a great mistake it is to grow huge Cucumbers! When people tell you that they have Cucumbers 2½ feet long one can only express regret that they should think so much of size. Few persons want a Cucumber to be put on a table in its natural state, and even if they did it would be no advantage to have one stretching over any dish you might put it upon. But as they are nearly always cut up before being served the point to aim at is simply quality and not size, and this quality Cardiff Castle most thoroughly possesses. I saw here a plan which I have not noticed anywhere else. Round the collar of the plants of Melons there was placed what seemed to me, and I believe was, about 3 inches of the rim of a large pot, making a circular protection to it; and the reason of this was in watering to prevent any water falling on the neck of the plant, which Mr. Pettigrew considered the cause of much of the canker and decay that take place in Melons, and for the same reason a pane of glass was placed against the stem of the Cucumber plants. They received abundance of moisture, but not on the collar of the plant, and nothing could exceed their vigour and health. In the Peach house I also noticed what was to me a novel plan. The front lights of the house were hung on pivots, so that the upper surface of the leaves of the Peach trees which were trained on the trellises might be syringed as well as the under surface, and thus the attacks of red spider be prevented. No trace of that pest was anywhere to be seen.

The Vines were in the most luxuriant health, and of course (for do we not find it so everywhere?) the staple varieties were Black Hamburgh for black Grapes and Muscat of Alexandria for white. Notwithstanding the numerous claimants to public favour that have appeared of late years these two favourites hold their own against all comers. Dukes, and Champions, and Docters, and ladies even, may for a brief season jostle them out; but after all the gardener knows that these are dependable and relies on them chiefly. Alicante and Gros Colman were also grown on account of their keeping qualities, and in every large establishment some of the newer kinds are sure to be grown; but where the number of varieties is necessarily limited these two old favourites will afford the chief supply. By-the-by, in my little house I have been greatly annoyed by mice eating the Grapes. I have invited them to eat toasted cheese served up in a neat little apparatus, but they decline it, and seem to be vegetarians, for the Grapes are nibbled and eaten and the cheese left. The Pines exhibited the same high state of culture as the rest of the fruit, and were perfectly free from any insect pest.

The plant houses were full of well-grown plants, such as are usually to be found in such establishments—*Eucharis amazonica* in large numbers and fine plants; Azaleas; Coleus, some grand plants prepared for exhibition, but nothing unusual. In the grounds the Roses on Manetti stocks were very fine, and had the weather been more favourable Mr. Pettigrew would have been able to exhibit blooms equal to those shown at our large exhibitions. At the Exhibition there the Marquis of Bute gave a prize for the best twelve blooms of the York-and-Lancaster Rose. Several boxes were exhibited, and the prize was won by Mr. Pettigrew. But great was my surprise on visiting the Oxford Botanic Gardens next day, under the guidance of Mr. Baxter, to be told that the Rose so generally grown and known under that title was really not it, but one called *Rosa Mundi*; the true York-and-Lancaster being an entirely different flower, not so flat, and often coming with one-half of the Rose white and the other red, not striped as in the flower ordinarily called by the name.

It was a matter of great regret to me that I could not remain any longer in Cardiff, or pay a visit I had hoped to have done to my excellent friend Mr. Llewelyn at Penllergare near Swansea; but exhibitors came crowding thick upon one another, and so I was obliged to leave; but it was a most pleasant visit, and I shall not soon forget the courtesy and kindness shown to me by Mr. Pettigrew; and of one thing I felt more than ever assured, that now that I had seen and talked with him I could the more readily assent to any teachings which he may hereafter favour us with in the pages of the Journal.—D., Deal.

SHADING CAMELLIAS.—I do not think it is wise to plant Camellias against hedges or walls, nor yet within a dozen feet of them, because I have always noticed (in Cornwall at all events) that when they are so grown they do not produce flowers except on one side. I have always seen the best Camellias grown fully exposed to the sun, but protected by tall-growing trees

200 or 300 yards off. In fact, several specimen Camellia trees are so grown in Cornish gardens; but it must be remembered, however, that in Cornwall the sun is not nearly so powerful as in some other districts of the country.—W. ROBERTS.

CHAPTERS ON INSECTS FOR GARDENERS.—No. 29. NEW SERIES.

SOME years ago the present writer contributed to the pages of a scientific journal an article upon "Darkling Spiders," which led to a lively discussion upon the habits of one group of these creatures. In this article an account was given of the curious and sometimes large webs that are to be found in dark closets or cupboards, or in similar places where it is exceedingly unlikely that spiders could capture any quantity of flying insects; and it was suggested that these webs, seemingly the work of several spiders, must be designed for retreats merely. From the information then elicited it appears that the number of flies and other winged insects that enter closets, sheds, &c., where there is little light is greater than might be supposed; also in such places these webs may be designed to entrap crawling insects and mites which are sure to frequent them. But, as a general rule, webs are spread by spiders with the object of catching winged insects, though a variety of insects in different stages tumble into the snares. Caterpillars are often found in spiders' webs, and to some species of these the occupiers of the webs manifest great dislike, ejecting them as speedily as possible. Should one of the leaf-rolling caterpillars fall into a web the result is usually a prolonged struggle between it and the spider; its dexterity enables it to slip out of the coils of silk thrown round the body, and only after it has received several bites does the caterpillar succumb.

Those spiders which do not construct webs secure their prey either by their wonderful agility, or by placing themselves in ambush to spring out upon their victims as they incautiously approach, and the species that are simply hunters manage to secure both winged and wingless insects. Subsistence is a precarious thing with most of the spiders. The web-makers in exposed situations are liable to have their webs destroyed, or a spell of wet weather may prevent their taking flying insects, and the wanderers of the race run many risks; hence it is found that all spiders are able to endure prolonged fasts, though when they have an abundance of food within reach they show themselves exceedingly voracious. Some of the species have an ingenious way of keeping their captives alive, having evidently a dislike to insects that are not fresh killed. They do nothing to these prisoners they wish to preserve, except to fix them firmly by silken cords in a safe position upon the web, where they may struggle ineffectually for several days, until the spider thinks fit to wound them with its fangs and bear them off to its retreat. Now and then these escape from durance, and there are of course insects often entangled in webs which the spiders find it necessary to settle at once—the stinging Hymenoptera, for instance. Wasps and spiders have at times desperate conflicts, the result being occasionally the death of both combatants. It seems, we may note here, to be a fact that when very few insects are obtainable, as during some of the winter months, spiders will bite up and devour fragments of their own webs.

Cannibalism is excessively common amongst spiders, and a couple are seldom to be observed approaching each other without suspicious caution; yet there are some small species that find sufficient food by wandering about the webs of the larger *Epeiræ*

or garden spiders, taking their minor captures. Possibly they also spin little but compact webs amongst the broad circles made by their kin. And at the period of their first appearance in the world young spiders of many species keep in company; an example familiar to most gardeners is that of a common *Epeira*, the juveniles of which are pale yellow with one black spot, noticeable in clusters upon walls and palings during the month of May. Until they have passed one or more moults they live together amicably, forming a web which supplies food and a home. A naturalist saw one of these, newly hatched, eject a line a hundred times its own length and attach this to a distant point, when, the rest of the brood assisting, a broad band of silk was soon constructed. The parent spiders have only now and then been observed in the act of feeding their progeny, but the jealous affection with which they guard their bag of eggs is apparent. They will bear this about from one spot to another, and fight for it to the death.

The spiders (fig. 48) belonging to the family Drassidæ are generally of a dull brown or grey colour, though one of our British species

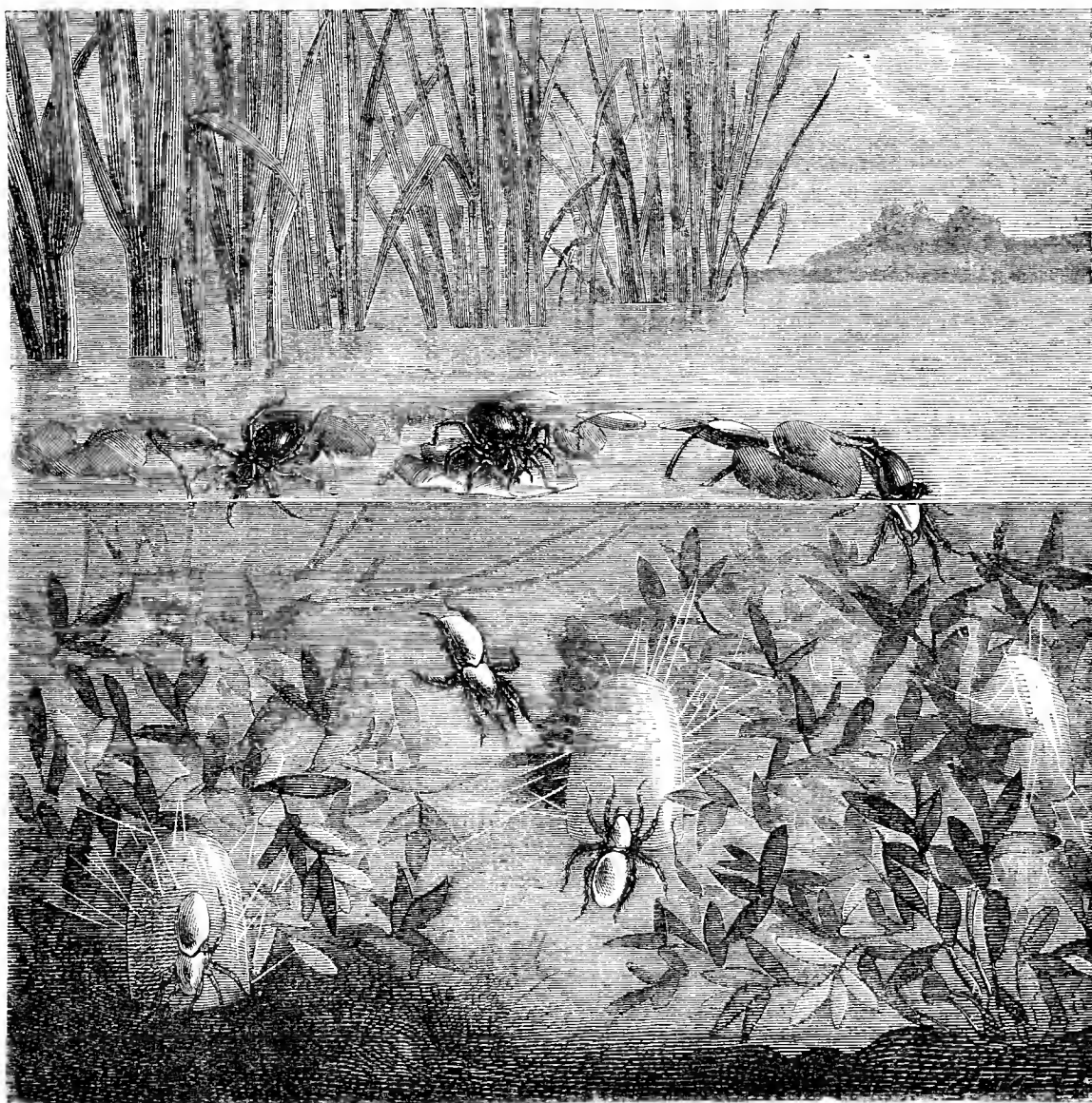


Fig. 48.—Water Spiders.

—*D. micans*—displays a metallic brilliancy on the abdomen. They are of moderate size, having slim bodies, and live upon walls or under stones, also upon trees with decaying bark, and occasionally amongst low plants. Each makes for itself a habitation in the form of a silken tribe, which is usually open at each end, though not always. They obtain their food by hunting. Formerly the water spider, *Argyroneta aquatica*, was placed in this family; but Mr. Cambridge removed it to the Agelenidæ, since it is a web-producer. This spider is still in request as an adornment for the aqua-vivarium, and it is sometimes introduced into ponds on lawns if to an extent it has been eclipsed by newer favourites. Its habits are particularly interesting, for this species constructs a dome-like cell or chamber, which is fastened to the stem of some aquatic plant, and to which a supply of air in globules is carried down by the spider. The hairs that clothe the body completely secure it from getting wet, and by manœuvring the bubble of air, which is always borne about under the water, the spider is as much at home under water as upon land. Its researches for food

are not confined to the fluid element, but anything captured on the bank is carried down to the cell to be devoured. The eggs are deposited and hatched also in a submerged cocoon.

In the genus *Cinifo* we find webs that are constructed in an irregular manner, and made of a flocculent, sticky silk, which soon becomes discoloured or dirty. These spiders have an additional pair of spinnerets, which are covered with flat plates; each of these contains about two thousand minute holes. *Agelena labyrinthica* is the spider which we so often perceive along the hedges, or on the clumps of bushes upon heaths. The exterior of the web is a mass of white and stout silk, spreading out for some distance, having lines leading to a tube or tunnel, at the bottom of which the spider lurks. The spiders of the genus *Tegenaria* occur in passages, rooms, and outhouses, their webs being sheet-like and rather angular, having a nest or hiding place in one corner below. These spiders are brownish, with a double row of markings along the abdomen, and long stout legs, often hairy. Some of the species, such as *T. domestica*, seem to subsist chiefly upon house flies, and they have the peculiarity of thickening their webs from time to time until they appear almost papery. In winter they are active, except during extremely cold weather, when they may be so far tamed as to take insects from the hand. *T. atrica*, which makes a large web of dark silk, endeavours to place its web across a gap or opening, by which flying insects are likely to try to pass. In damp rooms woodlice have been seen crawling in or near the webs of these house spiders, but they are not interfered with. Though apt to engage in combat I once observed one of them run from its own web into that of a neighbour's who had a boisterous fly, and the two having mastered it feasted upon it amicably.—J. R. S. C.



SIR TREVOR LAWRENCE, BART., writes respecting the PRESENTATION TO MR. J. DOMINY as follows:—"Will you kindly make known the result of our endeavour to raise a small fund as a recognition of the services to horticulture and the personal worth of Mr. John Dominy on his retirement from the service of Messrs. Veitch & Sons? I have received £262 10s. 6d. from 114 subscribers. After paying for advertisements, £13 4s., and a few other small expenses, I shall have £250 to present to Mr. Dominy. I should mention that many of the subscriptions were accompanied by letters which showed that the writers had a great regard for Mr. Dominy. Indeed, the testimony to his personal qualities and to his skill as a raiser and grower of Orchids has been most emphatic. With the consent of the Council of the Royal Horticultural Society I propose to present the fund to Mr. Dominy after the meeting of the Council on October 11th, at 3 P.M. I beg to thank the subscribers for the liberality and ready kindness with which they have contributed."

— WE are informed that Messrs. J. Veitch & Sons, Chelsea, had a handsome COLLECTION OF NEPENTHES at the HAMBURG EXHIBITION on the 14th to 18th inst., when the grand gold medal and the States medal were awarded to them. The collection was greatly admired, and included a number of the most attractive forms in cultivation.

— IN reference to FLOWERS AT GENERAL GARFIELD'S FUNERAL the following cablegram has been received from America—"The floral ornamentation is most lavish. Indeed such enormous quantities of flowers have kept pouring in from all quarters that those in charge of the arrangements are in a difficulty as to how they shall dispose of them. They have come by trains in great bulk, as if they were the commonest merchandise. Yet in spite of all this profuse floral tribute there rests on the coffin lid but one floral decoration. It is the exquisitely lovely wreath sent by the Queen of England." This wreath, we are informed, was composed of white Roses, Stephanotis, and Smilax leaves.

— MESSRS. W. HENDER & SON, Plymouth, send us examples of their DOUBLE-FLORET DAHLIA, with the statement that it has been twice certificated, the Judges "considering it to be probably a forerunner of a new race of Dahlias, as the inner florets may become elongated and so alter the present appearance of the Dahlia considerably." The variety is certainly a remarkable one, and is really entitled to the designation "double," for most of the florets include two and some three smaller florets. This gives the head a peculiar appearance, especially as the larger florets are somewhat quilled. In general form the bloom is globular and solid, the colour being a bright shade of scarlet.

— WE regret to have to refer to two ACCIDENTS TO GARDENERS that have recently occurred. Mr. Wildsmith of Heckfield sustained serious injuries by having been thrown out of a trap last week, but he is now, we are glad to learn, progressing favourably; and we are also pleased to hear that Mr. Simpson of Wortley, who recently broke his leg, is now so far recovered as to move with the aid of a crutch. We hope to hear of the speedy and complete recovery of these well-known gardeners.

— A CORRESPONDENT observes—"AMARANTHUS MELANCHOLICUS RUBER has this season been admired by numerous visitors, as it is more showy than such plants as *Coleus Verschaffelti*, *Iresine Lindenii*, and Dell's Beet growing near it. It is superior to the three above mentioned; it is more compact in growth, brighter in colour, and bears pinching well. The unusually hot summer undoubtedly was very favourable to it. Where it succeeds well it is a great acquisition among bedding plants."

— "D. C." writes—"TROPÆOLUM SPECIOSUM is singularly capricious. I had a plant which, till a good situation was found, was placed against a kitchen garden wall facing nearly south and apparently a dry situation. By accident it was left there, and having been covered with flowers this summer I have desired the gardener to leave it permanently. In the hot weather it was a little scorched, but I had tried it before in north and appropriate situations with no good results, so I conclude it to be a capricious plant. It is most beautiful even in the extreme north of Scotland, and all points to a damp and cool aspect as the most likely, though I have seen it fail to flower in a damp Yorkshire dale this autumn."

— "W. K." sends the following note—"On visiting Kew a few days ago my attention was attracted by some trees of *PYRUS BACCATA*, which are planted freely in the shrubbery borders with excellent effect. These trees are of double value for shrubbery work. In the spring they bear abundance of snowy-white flowers, and in autumn they look equally handsome laden with their rosy fruits. These fruits could be used in a variety of ways for decorative purposes with admirable results, arranged in vases associated with flowers and Grasses."

— THE same correspondent observes that "In the Orchid house at the above-named establishment may now be seen in flower a fine plant of *DENDROBIUM AUREUM* VAR. *PHILIPPINENSE*. The flowers are similar to the typical form, but larger and of a lighter colour. The pseudo-bulbs are very different from the species, being about 4 feet in length. The plant is flowering profusely from the old stems, producing four and five flowers from most of the joints. When the variety becomes better known it cannot but find favour with most Orchid-growers. It is at present comparatively new, having been introduced to this country about twelve months ago. Mr. Low, at Clapton we believe, first introduced it. *Dendrobium formosum* var. *giganteum* is another valuable Orchid, and is also in flower in the same house. The flowers are pure white with a broad band of bright orange at the base of the labellum; they are produced from the extremity

of the young matured growths. These two Dendrobies should certainly find a place in every Orchid collection."

— SOME pods of Carter's CHAMPION RUNNER BEAN have been sent to us, grown by Mr. E. K. Piper of Oxford, and who states he has taken the prize offered at the Woodstock Show for nine years in succession with this variety. The pods are 9 inches in length, and are very fleshy and fine.

— BLOOMS of the new DAHLIA GEORGE RAWLINGS, which was certificated at the last meeting of the Royal Horticultural Society, have been sent us by the raiser, Mr. G. Rawlings of Romford. They are of great substance, close and firm, symmetrical in build, and of considerable depth. The florets are a rich dark maroon, shading to deep but rich crimson at the margin, which has a very pleasing effect in a good light. The variety is certainly a handsome one, and the specimens we have seen indicate that it well merits the honour bestowed upon it by the Floral Committee.

— THE EPPING FOREST AND COUNTY OF ESSEX NATURALISTS' FIELD CLUB will hold their annual Cryptogamic Meeting on Saturday, October 1st, 1881, in the northern section of Epping Forest (High Beach, Monks Woods, Theydon Woods, &c.). The Council announce that the following well-known botanists have kindly promised their valuable aid as referees and conductors at the Meeting:—For Fungi: Dr. M. C. Cooke, M.A., F.L.S.; Mr. Worthington Smith, F.L.S.; Dr. H. T. Wharton, M.A., F.L.S.; Mr. James English. For Mosses, Lichens, and Phanerogams: Dr. Braithwaite, F.L.S.; Mr. E. M. Holmes, F.L.S.

— IN a brief descriptive note of GLYN-Y-MEL, FISHGUARD, PEMBROKESHIRE, the romantically situated seat of J. Worthington, Esq., a correspondent, "W. T. R.," states that a wall of Bourjasotte Figs is very fine, the fruits measuring from 10 to 10½ inches in circumference, but we are not informed whether it is the White, Black, or Grizzly Bourjasotte. *Lilium auratum* is also said to be very fine, the stems bearing from twenty-four to twenty-eight flowers each. Azaleas and Camellias also succeed well in the open air, *A. indica* being a "perfect sight" in May. The fruit crops are described as good, and Mistletoe plentiful, which is "a rare circumstance in Wales." The gardens are under the competent management of Mr. F. Pratt.

— MESSRS. H. CANNELL & SON of Swanley send us blooms of an extremely beautiful TUBEROUS BEGONIA named MADAME DUMAS. The flowers are double, very full, the petals disposed symmetrically, and, being of great substance, are suggestive of Camellias. The colour is a delicate blush, nearly white, the pink tint being very faint but pretty. The chief quality of the flower is, however, its surprising fulness and regularity of form, which we have not seen surpassed by any other double variety. Blooms of the large-flowering single variety Countess of Kingston were also sent, and are noteworthy for their size, in some instances exceeding 5 inches in diameter, and for the brightness of the scarlet hue.

— "ALL lovers of horticulture," says a Manchester paper, "will be pleased to learn that the initial steps have been taken—under such auspices as guarantee a successful issue of the undertaking—to recognise in a substantial and practical manner the eminent services which MR. BRUCE FINDLAY has rendered to these kindred arts. Mr. Findlay has occupied the position of Curator to the Manchester Botanical Society for nearly a quarter of a century; he has been actively concerned in all the great national and international exhibitions promoted by that Society, and, indeed, is entitled to the credit of whatever success has been attained by these shows. A number of gentlemen assembled at a private meeting at the Town Hall a few days ago, under the presidency of the Mayor (Mr. Alderman Baker), unanimously resolved to advocate a substantial presentation to Mr. Findlay in

recognition of his services, and an Executive Committee was appointed to carry out the resolution. The following gentlemen compose the Committee—Mr. C. S. Agnew, Mr. Joseph Broome, Mr. S. Barlow, Mr. G. Benton, Mr. John Galloway, jun., Mr. John Grantham, Mr. Richard Hardwick, Mr. Robert Tait, and Dr. John Watts—Mr. Broome taking the office of Chairman, Mr. Barlow the functions of Treasurer, and Mr. Tait the duties of Hon. Secretary. Subscriptions amounting to over £250 were entered at the meeting."

— WILSON'S STYLUS PEN.—Messrs. Letts & Son (Limited) have introduced a new stylographic pen at a small cost compared with that at which the original article of that name was sold for. This possesses all the merits of the other, and is one of the most convenient of caligraphic arrangements we have seen; for not only is it furnished with an abundant supply of ink always ready for use, but the article itself is so portable it can be carried conveniently in the waistcoat pocket, where it takes up no more space than an ordinary pencil-case.

— WE are informed that the WIMBLEDON ROYAL HORTICULTURAL SOCIETY will hold an Exhibition of Chrysanthemums in the Lecture Hall, Wimbledon, on Wednesday, November 23rd. Mr. H. A. Rolt is the Secretary.

— "AN OLD SUBSCRIBER" writes—"Can any of your correspondents inform me if there is any use to which the STEMS OR LEAVES OF JERUSALEM ARTICHOKE can be applied? I am under the impression that it has been stated that the stems could be manufactured into an article resembling hemp. If there is any useful purpose to which the stems or leaves can be devoted I should be glad to know the process of preparation needed."

— WE observe that an American nurseryman announces a NEW WEeping DOGWOOD for distribution shortly. He describes it as "a variety of the Great Dogwood, *Cornus florida*, which is itself known as one of the most beautiful of ornamental plants, being admired especially for its large white floral bracts, which are succeeded by red berries as brilliant as the Holly, while in the fall the deep red foliage is one of the chief elements in our scenery. A weeping variety of such a plant would alone be a welcome addition to our lists, even though it had to be grafted on tall stems, as other weeping plants are. But this beautiful plant has one advantage in which it is alone among weeping trees; while every branch is heavily pendulous, the leader ascends straight as an arrow, and makes a specimen which charms everyone by its regular beauty, so unusual in weeping trees."

— WE are requested to state that the WOOLHOPE NATURALISTS' FIELD CLUB will hold the last field meeting of the year at Hereford on Thursday, October 6th, for a foray among the Funguses, when many distinguished mycologists will be present. There will be an exhibition of Funguses in the Museum room at the Free Library, and an evening meeting will be held there on Wednesday evening, October 5th, at 8 P.M., to name and study them. The Foray will be made in Stoke Edith park and grounds, by the kind permission of Lady Emily Foley. The dinner will take place at the Green Dragon Hotel at 4.30 P.M., when some edible Funguses will be served, cooked from the Club receipts. A soirée will be held at the house of Thos. Cam, Esq., at 8 P.M., to which he kindly invites all who may be present at the meeting. After dinner, or at the evening meetings, papers will be read on the following subjects—"The Progress of Mycology," by Dr. Bull; "Fungus Mimics," by M. C. Cooke, M.A., LL.D., &c., &c. "The Herefordshire Carices," by the President of the Club; "The Fungi of the Dolomites," by Thos. Howse, Esq., F.L.S., &c. "The Fungi which Attack the Wheat," by the Rev. John E. Vize, M.A.; "The Germination of the Uredines, and the Relationship of *Æcidium Berberidis* to *Puccinia Graminis*," by C. B.

Plowright, Esq.; "Protococcus," by the Rev. John E. Vize, M.A.; "Monstrosities in Fungi," by W. Phillips, Esq., F.L.S., and a curious and abnormal cellar Polypus will be shown by Mr. Phillips; "Two Tomato Diseases," by C. B. Plowright, Esq. Gentlemen intending to be present are requested to send their names to the Secretary, Mr. Theophilus Lane, Broomy Hill, Hereford, on or before Monday, October 3rd, that all proper arrangements may be made for their comfort. The Pomona Committee of the Club have decided to hold an exhibition of Apples and Pears on Wednesday and Thursday, October 26th and 27th, and request the favour of the personal interest of the Members in support of it. Donations in aid of the prize fund are much needed.

— A LADY correspondent writing to us from the neighbourhood of Lago Maggiore, Italy, observes—"One of the most attractive and fragrant shrubs here is *OLEA FRAGRANS*. The perfume makes itself felt in the gardens; and if the plant grows freely in the open air here, where snow falls during winter, it might succeed in England, and prove attractive in a cool conservatory on account of the remarkably powerful perfume of its flowers." Most English gardeners know this plant very well, for it has now been in cultivation here for more than a century, and is a welcome addition to any greenhouse or conservatory.

— "WITHIN a day's march of MESHED," writes the correspondent of a daily contemporary, "the cornfields begin to give place to vast expanses of Melon and Cucumber cultivation, of which enormous quantities are consumed during the hot weather. Here and there the tendrils of the plants are trained over slight frameworks, so that the great broad leaves form arbours to protect the watchmen from the sun. Nothing could be prettier than the appearance of these fresh green bowers with their great broad staring yellow flowers, after the dusty plain and scorched stubble-fields. At intervals, too, are orchards. Peaches, Plums, Apricots, and Grapes, all of delicious quality, are brought to market in great quantities. The dark purple Plums are very remarkable, some being as large as good-sized Peaches. The ground is everywhere inundated with pools of water, and irrigation trenches cross and recross each other in a complex maze. This surface water is, I should think, mostly derived from the Keshef Rood, the river which formerly watered Toos, the ancient capital. Besides this surface water there is also a large subterranean amount being conveyed in underground channels to more distant fields situated at a lower level."

— A GERMAN paper, referring to the TAXATION OF TOBACCO, relates an example of remarkably sharp practice which has given rise to much comment. It appears that two revenue officers in the execution of their duties visited the Königsberg Botanical Gardens, and having ascertained that a number of Tobacco plants was grown there for scientific purposes, they considered it necessary these should be taxed. The Director refused to pay the tax, and in consequence the plants were uprooted.

— PROFESSOR DAWSON, of the Dominion Geological Survey, reports that the FORESTS OF BRITISH COLUMBIA are of vast importance. Many first-class mills have been established in various parts of the country, and the total annual product is stated to be about two hundred million feet, of which twenty-five million feet is exported to other countries, twenty-five million feet used at home, and one hundred and fifty million feet sent to California. Professor Dawson estimates that one hundred and ten million acres (or two-thirds of the whole province) are covered with timber. The Douglas Fir or Oregon Pine is the most valuable commercial tree. It frequently exceeds 8 feet in diameter, and rises to a height of from 200 to 300 feet, forming great and dark forests. The Western Hemlock and the Red Cedar are the other important trees of the province, both of which, the latter especi-

ally, grow to a great size. When the great plains of Canada become populous the mines and forests of British Columbia are likely to be of great importance.

SOUND POTATOES AND THEIR CULTIVATION.

My Potatoes have again turned out a fine crop. Myatt's Prolific and Rivers' Royal Ashleaf were dug up in July quite sound, the former by far the heavier crop. The late variety, Suttons' Magnum Bonum, was harvested at the beginning of this month perfectly sound and free from disease, the yield averaging over five sacks to each bushel of seed planted. My gardener called my attention to the first three roots he had lifted, and we counted their produce to be sixty-four good-sized tubers. He is always careful to select ground for Potatoes on which ordinary green crops have been grown the previous year. The soil is well trenched during the winter, and in early spring liberally dressed with leaf soil only. He plants as early in March as the season will permit, and is thereby enabled to secure the crop before the autumn rains commence. Last year's Magnum Bonums remained in good condition to the middle of the following July.—W. G., Elmdale, Sutton, Surrey.

DIMORPHOUS FLOWERS.

THAT portion of Sir John Lubbock's presidential address before the British Association which points out that pollen from long-stamened flowers of Primroses, if applied to the stigmas of long-styled forms and *vice versa*, produces a much greater percentage of seeds than when the flowers are fertilised with their own or even other pollen from a similar flower, may, we fear, be read in many instances without the reader learning the lesson which it contains. This fact induces us to say a few words on the fertilisation of Primrose flowers. The way usual among gardeners, and we fear among those which grow seed for sale, is to pull the corolla of pin-eyed (long-styled) flowers with the stamens, which are halfway down the tube, out of its socket and over the pistil. This operation causes a few grains of pollen to settle on the stigma, and the formation of, in comparatively rare instances, a few seeds. The cross-fertilisation of different forms, if done under favourable conditions, will, on the other hand, result in every flower setting and every seed-pod filling with a full complement of good seed. This is not all. It has again and again been proved, and now no longer admits of any doubt, that in-and-in bred seed becomes more or less rapidly weak in vitality, and the resulting plants are in proportion weak; indeed, eventually the race becomes weak. It is quite different when different strains are crossed, and it is quite necessary that the different forms of dimorphous and trimorphous plants be crossed. The crossing of species does not invariably produce greater vigour in the offspring, but the crossing of different races of the same species almost invariably produces that result.

This much by the way, although what we have said is worth remembering. What we want to consider just now is Sir John Lubbock's reference to dimorphous flowers repeated in another form. Instead of leaving Chinese Primulas (for to these we more particularly refer) to set themselves, or even to fertilise either of the two forms with pollen from another plant belonging to the same form, we advise all who wish to save their own Primula seed to choose pin-eyed flowers for seed-bearers, and thrum-eyed forms to furnish the pollen. The fertilisation of thrum-eyed flowers by pollen from pin-eyed flowers will have precisely the same effect, but it is much easier to perform the operation on pin-eyed flowers. Of course we expect everyone will be alive to the advantages to be derived from selecting the best and most vigorous examples from which to raise seed. Advantage, also, will arise from the crossing of strains; and as a few flowers will afford pollen sufficient to fertilise a large number if the pollen is used economically, flowers may be procured, if thought desirable, even by post from friends.

It is of little use applying pollen to stigmas in November, December, or January. Sunny weather is necessary to secure the best results; therefore it is soon enough to begin by February. The selected plants should be stood on a sunny shelf and fed with weak liquid manure rich in phosphates and potash, such as is furnished by any good guano water or weak sewage. If this precaution is taken, more seeds, and seeds of a better quality, will follow. We have experimented and proved it. The pollen should be applied with a camel-hair pencil, and the best time to do it is about mid-day. If your aim be to secure the strongest plumpest seed for your own use, do not be greedy, but be content with from one to two dozen pods from each plant according to its size and strength. Ripen the seeds in a sunny position under

glass, but do not let impatience cause you to submit the plants to a high temperature, for that weakens them. Flowers fertilised in February will, in a warm greenhouse, ripen their seed in good time for furnishing plants for spring use the year following. They will scarcely do for very early plants, though.

Raising Primula seed is by many gardeners regarded as a secret. If it has been so it is one no longer, and we hope everybody will be better by knowing it. Let all who practise it make careful

selection, and take care to begin with the best strain procurable, and seize on every improvement.—A SCOTCHMAN.

ROSA RUGOSA.

FOR several seasons one of the most noteworthy features in Mr. T. Ware's nursery, Tottenham, has been the fine clumps of the handsome Japanese Rose named above, which form such con-

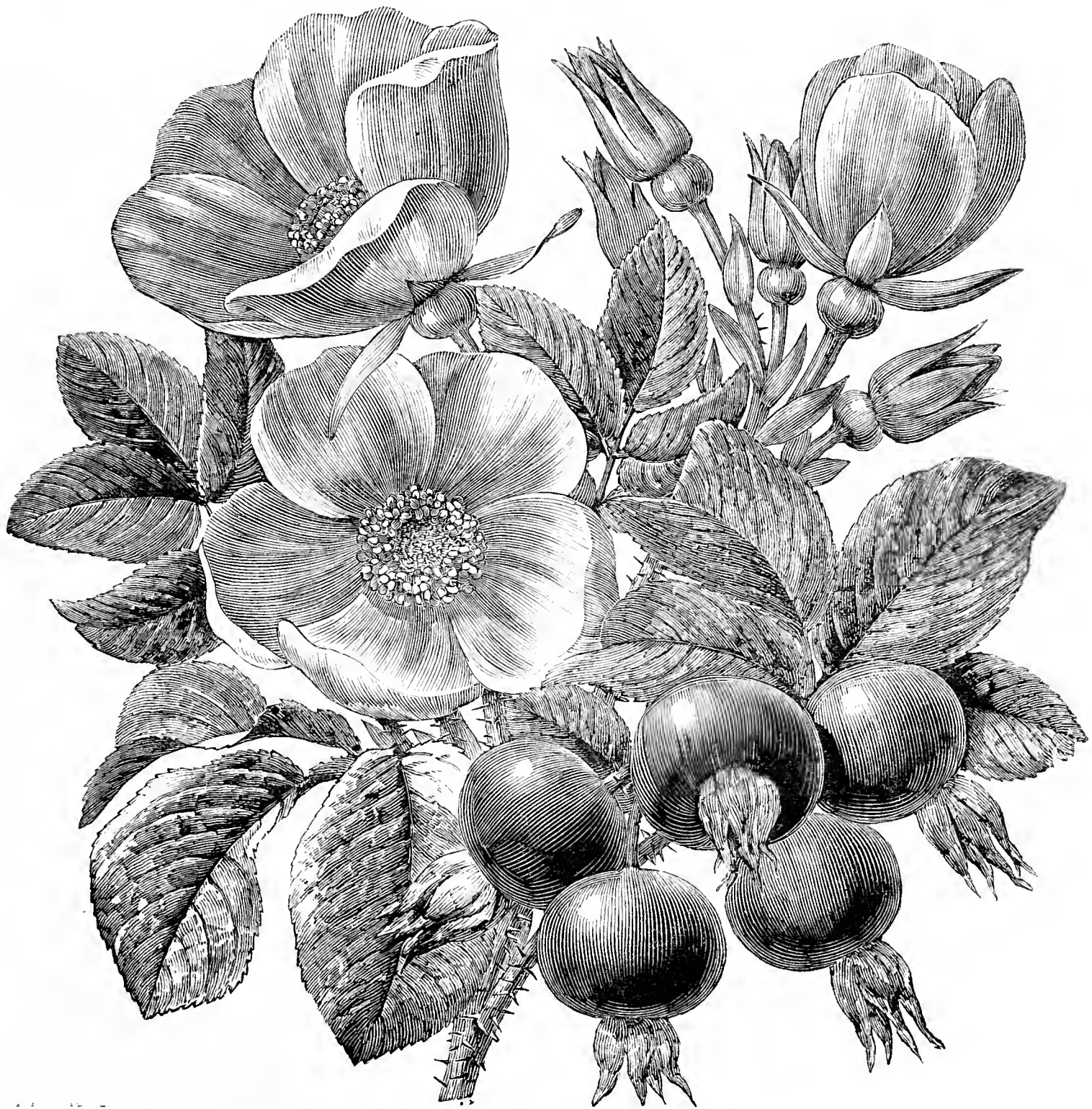


Fig. 49.—ROSA RUGOSA.

spicuous objects upon the rockery there. Defying all severity of weather and the low temperatures such as have been experienced in the last two or three winters, the plants grow vigorously, and every summer flower profusely, the flowers being followed by handsome clusters of bright red coral-like fruits. Few ornamental flowering shrubs possess so many valuable qualities. Perfect hardiness, free growth, compact habit, pretty and abundant white or crimson flowers, and bright-coloured fruits constitute an assemblage of attractions which in these utilitarian days cannot be long disregarded. Such a plant deserves popularity, and this it will undoubtedly obtain, for all who have tried it recommend it to their friends most cordially.

True, this Rosa has one unpleasant character. The thorny accompaniments which an old adage teaches us always to expect with Roses are unusually abundant in the case of *Rosa rugosa*, the stems being so thickly clothed with spines of various sizes that they present quite a formidable appearance. However, this interferes but little with the real utility of the plant, as the flowers and fruit are seen to the best advantage when growing, and are not so well adapted for cutting as some others. The foliage, too, is beautiful, of a fine green tint, the leaves neatly pinnate, each leaflet being wrinkled or rugose upon the upper surface.

The species is a native of China and Japan, where it is said to be found growing wild in sandy soil, and it has been also culti-

vated there during a long period. Several varieties are obtained from seed, varying from rich crimson through lighter shades to pure white; but all are beautiful, especially the extremes of the series.

The woodcut (fig. 49), shows both flowers and fruit, and was prepared from a specimen furnished by Mr. T. Ware.

WASPS.

LAST year, through July, August, September, and even later, I had to contend with the wasps for all my garden fruit. I took with a most seductive beverage for them—skilfully compounded of beer, sugar, water, and quassia chips—about one pint of wasps daily for several weeks, and wondered where they all came from. This year during April and May queen wasps were most extraordinarily abundant. I killed on several days six, seven, and even ten. Now not a wasp is to be seen. I dare venture to give a shilling for a wasp caught within a mile of my house. We have been able to gather a most abundant crop of Currants, Raspberries, and Gooseberries without being annoyed by these insects. What has become of them? I think that one of our late frosts must have destroyed all the young broods in the nests. How are they in other parts of the island?—G. O. S.

AN ESTIMATE OF GRAPES.

AN English gardener who has an intimate knowledge of Grapes having been requested by a Belgian gentleman to furnish him with a descriptive list of the Grapes that are most approved in England, and their adaptability for cool or warm houses, also for affording a supply at different periods—has submitted the following paper to us for perusal, and for publication if we think it worthy of a place in the Journal. As we think our correspondent has made a judicious selection, and has described the varieties with considerable accuracy, his estimate can scarcely fail being useful, while the varieties named will be sufficient for most cultivators who require a good and serviceable collection of Grapes.

THE BEST BLACK GRAPES (EARLY).

BLACK HAMBURGH is the most useful Grape in existence. Free grower; fine bearer, and quality. *Early*, and well managed keeps until January. In England it is in use from May till the end of the year. Victoria and Frankenthal (Pope's Hamburg) are fine forms of it, and in some soils differ very slightly, if at all, from the type. Mill Hill Hamburg is a more delicate grower, but fruit fine. Dutch Hamburg, larger but coarser. More Vines of the Black Hamburg are sold and grown in England than of all the other varieties combined. You may confidently recommend it as the *BEST early Black* and general purposes Grape. Warm or cool house. A bunch of Black Hamburg has been grown by Mr. Hunter of Lambton Castle (Earl of Durham's) weighing 21 lbs. 12 ozs.

MADRESFIELD COURT.—A splendid Grape for early autumn. Sometimes the berries crack when the Vines are strong and crop light. Large bunches, noble berries, rich quality. Will not force so early as the Black Hamburg. Warm or cool house.

BLACK CHAMPION.—A little earlier than Black Hamburg. Berries rather oval, and colour well; bunches short, and not shouldered. Not much grown nor wanted except for variety.

MUSCAT CHAMPION or CHAMPION HAMBURGH. MUSCAT.—Fine bunches and berries, splendid quality; colour grizzly, seldom if ever black, and on this account not much grown in England. Early autumn. Warm or cool vinery.

BLACK FRONTIGNAN.—Although the bunches are not large, and the berries only medium-sized, yet the flavour is very rich, and as the Vine bears well in a warm or cool house it is worth growing.

MEURTHE FRONTIGNAN.—Has larger berries than the preceding, and is in other respects equally good. One of the best of its type. Both these ought to be more grown in England for their fine flavour—Frontignan and Muscat mixed, the latter preponderating; but English gardeners must have *size* as well as quality.

LATER, BUT NOT VERY LATE, KEEPING (BLACK) VARIETIES.

VENN'S BLACK MUSCAT.—When in good condition fine in every respect—size, colour, quality; but—and a very important "but" it is—the berries do not always set and stone well, and they sometimes "shank," decay at the footstalks, and turn like bags of vinegar (acetic acid).

BLACK MUSCAT OF ALEXANDRIA.—Precisely the same remarks apply here, indeed about half the number of English gardeners consider the two varieties identical. If there is a difference between them it appears to be very slight. Only skilled cultivators can grow these Grapes well. This is also known as Muscat Hamburg and Snow's Black Muscat.

BLACK PRINCE.—Pretty tapering bunches, seldom shouldered; good-sized oval berries, bluish black, and of excellent quality. Good grower, bearer, and setter, ripening well in a cool house. Totally distinct from Mill Hill Hamburg. As you ask this question I may

say there is as much difference between them as between a dray horse and an Arab in appearance.

WEST'S ST. PETER'S.—Fine bunches, and good-sized roundish oval berries, very black, almost purple; juicy, sweet, and refreshing. It requires a warm house, and keeps well until February. A very good Grape.

ROYAL ASCOT.—Rather small bunches, but good berries, crackling and refreshing; one Vine, however, is sufficient in most gardens, and it can easily be dispensed with.

TRENTHAM BLACK.—Large, tapering, and well-shouldered bunches, and medium-sized oval berries, very black, and of a rich vinous flavour. It ripens about the same time as the Black Hamburg, but keeps better, continuing the supply until the very late Grapes are ready for use. A good Grape, and succeeds well either in a cool or warm house.

THE BEST KEEPING (BLACK) GRAPES.

LADY DOWNE'S.—Although not the finest in appearance, this is perhaps the best of all late Grapes. The Vine is a good grower and excellent bearer; bunches long, slightly shouldered; berries roundish oval, above medium size, good in colour when well ripened, and of superior quality, having a faint trace of Muscat flavour. Will hang fresh till March, sometimes later. Must have a warm house.

ALICANTE.—A handsome and useful late Grape, though not of the highest quality. The Vine is a free grower, great bearer, and sets its fruit freely; bunches large, and broad across the shoulders; berries large, oval, and jet black; juicy, and much of the Hamburg quality. Will ripen its fruit in a moderately cool vinery, but the quality is much improved when the Vines are grown in a high temperature and the fruit is ripened early. Much grown for the market.

MRS. PINCE'S BLACK MUSCAT.—A good keeping Grape of the highest quality; rich Muscat flavour. A free grower and good bearer; bunches large, tapering, and shouldered; berries of good size and perfectly oval, but do not usually colour well. The want of colour generally is the fault of this Grape, and to aid the colouring process the Vine should be allowed to carry more foliage than other varieties. It is best grown in a warm house.

GROS GUILLAUME.—Incorrectly sold under the name of Barbarossa, which is a red Grape and seldom seen. Gros Guillaume produces the largest bunches of all black Grapes, with berries of good size and nearly round; juicy, sweet, and approaching the Black Hamburg quality. Pruned on the short-spur system the Vine is often a shy bearer. Young canes should be retained when pruning, and these strong and well ripened usually produce fine bunches freely. Bunches are grown from 18 lbs. to 25 lbs. It requires a warm house, and keeps late.

GROS COLMAN.—Vine a very strong grower; bunches good; berries of great size and round—the largest of all black Grapes. Ripened in a cool house the flavour is poor, but in brisk heat is fairly good. A most imposing Grape and a good keeper. Is rising in repute as a market Grape.

ALNWICK SEEDLING.—In appearance and general character much resembles the Alicante, but is of better quality. It does not, however, set its berries so well, and to ensure full bunches the flowers should be artificially fertilised by lightly drawing a rabbit's tail or a bunch of Feather Grass over them; and if pollen can be supplied from other free-setting varieties so much the better. Has had a first-class certificate from the Royal Horticultural Society. A good keeper.

GROS MAROC.—A strong grower like Gros Colman, but in other respects quite distinct. Bunches of good size, tapering, and handsome; berries oval, and of a splendid blue-black colour; quality refreshing, something of the Black Hamburg quality. It was introduced from France by the late Mr. Rivers, and was awarded a first-class certificate in 1880 by the Fruit Committee of the Royal Horticultural Society. Skin tough but not thick. It will probably prove a good if not a very late keeper; it should be grown in a warm house to ensure the best quality.

Note.—Many people think that to have Grapes *late* in the spring they should be ripened *late* in the previous autumn. This is a great mistake. If they are not ripened well they will not keep well, and it is impossible for their quality to develop in dull, cool, autumn (October) weather to anything like the same extent as when aided by the sun in August and early September; therefore Grapes that are intended to keep late must be ripened early. The bunches should also be thinned much more freely than those of summer and autumn Grapes, for crowded bunches will not keep long.

THE BEST WHITE GRAPES (EARLY).

The earliest white Grapes belong to the Sweetwater and Muscadine sections. Of the former *Early White Malvasia* is one of the earliest, and good; bunches medium, thin, tapering; berries medium to small, juicy, rich, and sweet. Cool house or wall.

FOSTER'S SEEDLING.—Considered the best of the Sweetwater class. A good grower and great bearer, with fine bunches of medium-sized berries of good quality. The most useful white Grape for forcing early with the Black Hamburg. For this purpose it is more largely grown in England than all other white (not Muscat) Grapes combined.

BUCKLAND SWEETWATER.—Also a very popular, freely grown, and good Grape. The berries are larger than Foster's and of equally good if not better quality; but the Vine is not such a constant bearer, and the berries are rather liable to shank; skin very thin. A very

good Grape for growing with the Black Hamburg, and few vineries should be without at least one rod of it.

Of the white Frontignans *Early Saumur Frontignan*, *Chasselas Musqué de Sillery* (*Salamon's Frontignan*), *Early Auvergne Frontignan*, *Troveren Frontignan*, *Josling's St. Albans* (*Chasselas Musqué*) are all early, with rather small tapering bunches, and small to medium berries of rich flavour; not much grown in England—too small generally—but occasionally fruited in pots. The best in this section, but a little later, are Dr. Hogg (the best of all), and Duchess of Buccleuch, both of which have much larger bunches than those named above, and of excellent flavour. The Frontignans first named are as early as the Sweetwaters—earlier than the two popular varieties last named in that section, and are useful for pot culture.

LARGER EARLY WHITE GRAPES.

GOLDEN HAMBURGH.—Bunches of good size, loose; berries large, oval; skin thin, pale amber; juicy, sugary, and vinous. Rather delicate, and must not hang long. Cool house.

GOLDEN CHAMPION.—Bunches good; berries very large, oval; skin thin, pale amber; very fleshy and juicy, with Hamburg flavour. A shy bearer, but when well grown a remarkably fine Grape. First-class certificate by the Royal Horticultural Society. One Vine should be grown in the Black Hamburg house for trial.

DUKE OF BUCCLEUCH.—This is the finest and at the same time most capricious white Grape in England. In some places it grows well, producing its good bunches and magnificent berries freely; in other places it will not grow and fruit at all. Under the charge of the brothers Messrs. William Thomson (the raiser) of the Tweed Vineyard, and David Thomson, gardener to the Duke of Buccleuch, it grows luxuriantly, and fruit is produced by the ton. The berries are round, of enormous size, and thin skin, amber; quality delicious, like a sweetmeat, very juicy, and of a rich Hamburg flavour. The Duke of Buccleuch will not eat any other white early Grape. It ripens before the Black Hamburg in the same house. The Vine is of a succulent nature, hence requires plenty of water; and then the wood must be well ripened and not pruned too closely.

MRS. PEARSON.—It has large bunches—indeed very fine—and large, nearly round, clear amber berries, sometimes with a faint tinge of pink when in the best condition. The fruit is fleshy, juicy, with a rich sprightly flavour. The Vine is a very good grower and bearer. Hamburg treatment. Certificated. *Golden Queen* of the same raiser is neither reliable in appearance nor quality, and is only very rarely seen in excellent condition.

WINTER GRAPES (MUSCATS).

MUSCAT OF ALEXANDRIA.—This is unquestionably the prince of white Grapes for winter. It is not necessary to describe it. There is no real difference between this and the Bowood and Tynningham Muscat. The distinction is a "fancy" one, and all are often propagated from the same stocks and labelled according to the orders received by nurserymen. I do not know that there is anything wrong in this, as purchasers get a good Grape whatever name is written on the label. The alleged differences are wholly due to soil and culture, as they do not exist when all the Vines are grown in the same house and border. The *Canon Hall Muscat* is quite distinct, having larger berries, but not of such high quality; it is also a very bad setter, and requires the treatment suggested for Alnwick Seedling. These Muscats must have a high temperature.

Note.—Will you accept a hint? If you have any Vines (varieties) that do not grow freely, graft them on Muscat of Alexandria stocks. This is, generally speaking, the best stock that can be had, and there are few varieties that do not thrive on it.

LATEST WHITE GRAPES (NOT MUSCATS).

SYRIAN.—Very large bunches, fine berries, and when grown in heat of good quality; grown in a cool house inferior; a very strong grower, and fairly good keeper. Largest bunch exhibited, 25 lbs. 15 ozs.

RAISIN DE CALABRE (CALABRIAN RAISIN).—Very large bunches, and fair-sized roundish berries. Vine a good grower and bearer; fruit not rich, but juicy and pleasant. A good keeper and useful. Largest bunch 26 lbs. 4 ozs.

TREBBIANO.—Bunches large and well shouldered; berries of good size and nearly oval generally, but in this respect variable; colour greenish white; fruit fleshy, juicy, and refreshing, but not rich. A good keeper and serviceable. Growth free, and bears well.

WHITE TOKAY.—Bunches of good size and well shouldered; berries large, nearly oval; skin rather thin, pale amber; quality good, juicy, refreshing, and sometimes rich. A good grower, bearer, and keeper. One of the best late Grapes.

WHITE LADY DOWNE'S.—A good Grape when well grown, which is not often, as it is delicate and shy, and in no respect by any means equal to the typical black variety; indeed white late Grapes are inferior in keeping properties and general usefulness to the black varieties. A reliable and really good late-keeping white Grape is yet a desideratum.

WHEN TO PLANT STRAWBERRIES.

SOME gardeners say now is the time to plant Strawberries, but according to my experience it is too late. We have planted Strawberries from June until October, and the time we like best

is about the end of July. At that time this year we planted out many hundreds of runners, and they are now most promising. If planted now little or no growth would be made this season, and would have little fruit next year; but as it is they are thoroughly established plants, with plenty of healthy leaves and stout crowns which will stand the winter well. Judging from others we have had before, a full crop of fruit will be obtained from our young plants before they have been planted out a year.—J. MUIR, *Marjam*.

PORTRAITS OF NEW AND NOTABLE PLANTS.

BOLBOPHYLLUM BECCARII. (*Nat. ord.*, Orchideæ).—"This is in many respects one of the most gigantic of Orchids; none is known with so stout a rhizome, so large a leaf, or such massive inflorescence. On the other hand, specimens of various species of *Vanilla* are far more bulky; and it has been credibly stated a single plant of *Vanda teres* in Birma is a sufficient load for an elephant! In one character *B. Beccarii* transcends all other Orchids, if not all other vegetables, and that is in the factor of its flowers, which is loathsome beyond description; of the same nature as that of *Amorphophallus* and of other Aroids (that of putrid fish), but more widely diffused, penetrating, and enduring. This most singular plant was discovered in 1853 by Thomas Lobb, when collecting for Messrs. Veitch, in the Island of Borneo, and leaves collected by him are preserved in the Lindley Herbarium of Orchids, now at Kew; but it was the celebrated traveller and botanist, Odoardo Beccari, who first obtained flowering specimens, which led to the determination of its genus, and to its being described by Reichenbach. It is singular that the Malayan Islands should present three of the largest-flowered and most foetid plants in the world—this, the *Raffaria* of Sumatra, and the wonderful *Amorphophallus Titanum*, discovered in this last-named island by M. Beccari."—(*Bot. Mag.*, t. 6567.)

GEUM ELATUM. (*Nat. ord.*, Rosaceæ).—"This belongs to a small section of *Geum*, separated from it by Willdenow as the genus *Sieversia*, the species of which differ from their congeners in the style, which elongates as the achene ripens, but does not become suddenly bent or twisted above the middle; as, however, all its other characters are those of *Geum*, which the species altogether resemble in habit, *Sieversia* has been reduced to a section of that genus. It includes about a dozen species, natives of mountainous districts in Europe, northern Asia, and N. America, where one, *S. Rossii*, is a native of high arctic regions. *Geum elatum* inhabits the whole length of the Himalaya. In its typical form, as figured here, it ranges from Kashmir to Kumaon, at elevations of 9000 to 12,000 feet; further eastwards, in Nipal and Sikkim, it is replaced by a subalpine form, var. *humile*; *Royle* (*Geum adnatum*, *Wall.*), a small plant, with usually a one-flowered scape, which inhabits elevations of 12,000 to 15,000 feet."—(*Ibid.*, t. 6568.)

KNIPHOFIA COMOSA. (*Nat. ord.*, Liliaceæ).—"The genus *Kniphofia* is interesting geographically because like *Gladiolus*, *Aloe*, *Philippia*, *Aristea*, *Geissorhiza*, *Moræa*, and many others, it has its head quarters at the Cape, and is represented in Abyssinia and other mountainous regions of tropical Africa by outlying representatives. Two of the Abyssinian species have lately been brought into cultivation—the present plant and *K. Quartiniana*, *A. Rich.*, which was figured lately in Regel's 'Gartenflora' (Tab. 907). *K. comosa* is much dwarfer in habit than the well-known *K. Uvaria* of the Cape, with narrower leaves and smaller flowers, with the stamens and style very much exerted from the perianth. Of the smaller Cape species it approaches closely *K. pumila*, *Kunth*, a figure of which, under the name *Tritoma pumila*, will be found at Tab. 764 of the 'Botanical Magazine.'—(*Ibid.*, t. 6569.)

CRINUM BALFOURII. (*Nat. ord.*, Amaryllidaceæ).—"This is a well-marked new species of *Crinum*, discovered by Dr. Isaac B. Balfour in his recent exploration of the Island of Socotra. Its nearest alliance is with two Himalayan species, *C. amœnum* and *longifolium* of Roxburgh; but all the three sub-genera of *Crinum*, *Stenaster*, *Platyaster*, and *Codonocrinum* are represented in each of the three tropical continents, and also in Australia. The flowers are pure white and very fragrant, and the bulb and leaves are much smaller than those of the ordinarily cultivated kinds, so that it will be a decided acquisition from a horticultural point of view; and it is to be hoped, as Dr. Balfour secured a good supply of bulbs, that it will be permanently established as a memorial in our conservatories of his adventurous and successful expedition, in which about a hundred new species and twenty new genera of plants were discovered."—(*Ibid.*, t. 6570.)

HOMALONEMA WALLISII. (*Nat. ord.*, Aroideæ).—"H. Wallisii was discovered by the collector whose name it bears in the Andes of Columbia when travelling for Mr. Bull, to whom the Royal

Gardens are indebted for the plant which flowered at Kew in October, 1878. Mr. Brown states there are two forms of the species—one with narrower leaves that have very indistinct cartilaginous margins."—(*Ibid.*, t. 6571.)

CHILIAN BEET.

FEW plants are more useful or easier to grow than Chilian Beet. In the subtropical garden it contrasts well with the various shades of green. In lines or masses it also has a charming effect. If taken up and potted the plants are valuable for decoration in the houses. In potting them it is necessary to be careful in keeping the leaves from drooping, from which I have found they seldom recover satisfactorily. To avoid this they should be placed in a cool frame and kept quite close for about a fortnight, damping them twice a day and shading. Pots 6 inches in diameter are large enough. The compost should be chiefly of well-decomposed manure and loam, supplying liquid manure frequently, as the pots are soon filled with roots, which require plenty of nourishment to keep the fleshy leaves in a healthy condition. In about three weeks after potting they may be safely removed to the greenhouse or conservatory. For decoration in the drawing-room and dinner table they are also invaluable, having a charming effect by artificial light.—A YOUNG GARDENER.



KITCHEN GARDEN.

WHERE advantage has been taken of the recent fair weather, the crops of Onions and Potatoes have been lifted and stored. The ground that has been occupied with Onions will be suitable for Cabbage, plants of which from the August sowing should be placed out as soon as ready, allowing them a distance of 18 inches every way, but if large heads are required 2 feet distance is not too much. Those for planting in spring or to fill-up vacancies through the winter should be pricked-out into beds about 3 inches apart. Where the demand for young Cabbages in spring is considerable, plant them a foot distance apart on warm borders.

Lettuce.—Plants from the August sowing which are to afford the spring and early summer supply should now be planted, and may be taken on a warm south border in the intervening spaces between where the early Peas will presently be sown at 4 feet apart, placing a row of Cos in the centre, and a row of a Cabbage variety on each side, and this will leave a space of 2 feet for the Peas. Stanstead Winter Cabbage and the old Black-seeded Brown Cos are unsurpassed. Other borders may be planted so as to continue the succession; and where there are borders available at the base of east or west walls they may also be occupied with Cos or Cabbage varieties, or both according to the demand, a distance of a foot being allowed from the wall, placing two rows 9 inches apart with the plants a foot asunder. After planting the main crop is completed, a quantity of the Cos should be pricked out on a sheltered border where protection can be given should the winter prove severe, and reserve some of the Cabbage varieties to fill up any vacancies that may occur, dusting the plants with quicklime to destroy slugs. Lettuces that are to occupy cold frames through the winter and afford an early spring supply should at once be planted, employing those from seed sown in late July of Early Paris Market, All the Year Round, and Sugar-loaf Bath Cos. Plant in alternate rows the Cabbage and Cos at 9 inches distance apart, the Cabbage sorts being 6 inches apart in the rows to allow of every alternate one being cut early, and the Cos 9 inches apart. The soil should be rich and moderately firm. Due attention must be paid to watering, and precautions should be taken to guard against the depredations of slugs, not placing the lights on the frames until frost occurs or when heavy rains prevail, ventilating freely when the temperature outside exceeds 35°. It will also be necessary to provide accommodation for the Lettuce and Endive, which are to be lifted from the open ground to give a continuous supply when that outside is injured or destroyed by frost. It will be an advantage to lift the plants now that are sufficiently advanced in

growth for the purpose, and they will withstand damp much better than those lifted after they have become saturated with the autumn rains. Where large supplies of Lettuce and Endive are needed shallow pits with moveable lights should be provided, and sufficient means of affording artificial heat to exclude frost. Endive may yet be planted at the foot of walls or in other warm situations to give a supply in spring. The best for planting now are Green Curled and Picpus, with the Close-hearted or Round-leaved Batavian.

Parsley which is sown in pits should be well thinned, and when the nights become frosty the lights may be placed on and removed during the day. If it was inconvenient to sow in the pits, spring-sown plants may be carefully lifted and planted in pits, or where these are not at command plant in deep boxes or pots, and place them in an orchard house or vinery where the fruit has been cut. Where Chervil is in regular demand it may be treated in a similar manner.

Radishes.—Make a sowing in a frame filled to within 9 inches of the glass with rich light soil, keeping the lights on until the seed has germinated, when they must be removed except when frost prevails. The best varieties for this purpose are Early Forcing Red and White Turnip, Wood's Frame, and French Breakfast.

Cauliflowers.—Prick out the best of the plants from the August sowing into handlights, having eleven plants in a 2-foot-square light, and proportionately less in those of smaller dimensions, every alternate plant being lifted spring so that five remain to give heads in May or June; south or at least a warm situation should be chosen for these. Supply water if necessary, and dress with lime, wood ashes, or soot to destroy slugs. The lights must be kept off until frost so as to induce a hardy sturdy habit. Prick off into frames a requisite number of the others for spring planting, employing good loam, as they grow much more sturdily in strong than in loose light soil. To insure an early supply promising plants from the August sowing of Veitch's Early Forcing may be placed in 3-inch pots and plunged in ashes in a frame, exposing them fully until winter, and then employ the lights only during frost, ventilating freely on all favourable occasions. When the pots are filled with roots transfer the plants to others a couple of inches larger, keeping them about an inch lower in the pots, and in December place them in a Peach or other cool house; there they will make steady progress, and may be shifted into 7-inch pots when the others are filled with roots, supplying liquid manure. In February or March transfer the plants to any available deep pits, the heads being about a foot from the glass, and there with protection over the lights on frosty nights, plenty of air when the weather is favourable, and liberal supplies of liquid manure, heads for cutting will be obtained a fortnight or three weeks in advance of those from handlights.

Let no opportunity pass in favourable weather without attending to earthing up Celery requiring it, and in tying up Cos Lettuces and Endive. Be prepared in case of sudden frost to cover French Beans, and to take up and protect Cauliflowers which are fit for use. A few of the outer leaves turned inwards over the heads will mostly be sufficient to protect them from frost for some time yet. Clear off exhausted crops of Peas, Beans, and Cauliflowers, and have all in readiness for digging and trenching, the latter being attended to as early as convenient while there is yet warmth in the soil, as trenching in cold weather is only turning under cold soil and retarding the growth of the crops in spring correspondingly.

FRUIT HOUSES.

Vines.—Where it is intended to have ripe Grapes by the end of April or beginning of May the Vines must be pruned at once, as the house will need to be closed by the middle of November, and forcing must be commenced early in December. The glass should be thoroughly cleaned, and the woodwork be washed with soap and water, and if necessary painted. The loose bark may be removed from the Vines, and then thoroughly wash them with tepid soap and water. If red spider has been present a dressing with an insecticide will be beneficial. Remove the old mulching and surface soil, supplying a few inches depth of fibrous loam with which has been incorporated about a twenty-fifth part of bone manure. The outside border

should be protected from heavy rains. Free ventilation is necessary, closing the houses only to exclude frost or when heavy rains prevail. Midseason houses will soon be cleared of fruit, and if the wood of the Vines is not thoroughly brown and hard apply fire heat in the daytime, turning it off at night, and keep lateral growths in check by stopping them. Young Vines and those newly planted which have been allowed to ramble should now have some of the shoots cut off, being careful not to injure the leaves on the main rods, and maintain a warm well-ventilated atmosphere till the wood is matured. Late Grapes of all kinds ought now to be fully ripe; if, however, there is any doubt as to their maturity, apply fire heat with a circulation of air constantly till all uncertainty is past. Late Hamburgs and other thin-skinned Grapes should have a little assistance from fire heat if necessary with adequate ventilation to ripen them; but after the Grapes are ripe a temperature of 50° is ample. Examine ripe Grapes frequently for decayed berries, expelling damp, and preventing it as much as possible by occasional fire heat in the daytime with free ventilation; night firing should be avoided as far as possible.

Peaches and Nectarines.—The earliest trees are now entirely denuded of foliage, and should, if the branches have not already been loosened from the trellis, be at once attended to, the trees being entirely loosened from the trellis, and the woodwork thoroughly cleaned with soap and water, and the glass both inside and out washed with water only; the trellis should be thoroughly cleaned and the walls limewashed. If painting be necessary it should be done to allow of its hardening before the house is closed. The trees likewise should be washed with tepid water, or they may be syringed with water at 140° to 160°. If there be any scale, or the trees were infested with aphides or red spider, dress them with an insecticide. The main branches of the trees should first be secured in position, spreading them evenly over the trellis, and they may be secured with small tarred string, allowing sufficient space in the ties for the swelling of the branches. The distance between the branches on a properly trained tree will range from 12 to 18 inches, and the bearing wood should be evenly distributed between those, and trained about one-third across the space between the branch it originates from and the one adjoining; this will allow space for the wood another season. No pruning will be necessary, as shoots of 5 or 6 feet length will be ripened to their points, and have fruit buds the whole length, and may be allowed to carry a fruit to every 12 or 15 inches of wood. It will therefore only be necessary to cut out superfluous or weakly shoots. The inside border should have the surface soil and old mulching removed, supplying fresh loam, to which has been added some bone meal, mulching the surface with 2 or 3 inches of short manure. A good watering should be given to the inside border if there be the least indication of dryness. The house should be kept open to the fullest extent, only closing it during the prevalence of frost.

As cold rains may be expected soon the outside border should be protected with litter, or, what is better, tarpaulin or wooden shutters. The trees which ripened the fruit in June are nearly devoid of foliage, and may be treated similarly to the earliest, which ripened the fruit early in May onwards; or if the lights have been removed they may remain off until the early part of November, when they should be replaced. Houses of later trees must have full ventilation, and any trees in late houses not ripening the wood well should be assisted with a little warmth, and will be advantageous likewise to later sorts ripening their crops. An occasional forcible syringing will be necessary to free the foliage from red spider. On no account must the trees lack moisture at the roots when ripening the wood, and any weakly trees should be afforded liquid manure. Any renovation of the borders or lifting of the trees must be attended to when the wood is mature and whilst bearing the foliage.

Figs.—Figs in pots intended for early forcing must at once have attention; and as it is not advisable to shift the trees into larger pots a few inches of soil should be removed from the base of the balls, cutting back the roots, and making the drainage good, supplying fibrous loam, to which has been added a sixth of road scrapings and a twentieth of crushed bones. The loose surface soil also must be removed, and from the roots at the sides of the pot, not disturbing

them too much. The materials can hardly be rammed too firmly. Water thoroughly, and place the plants in a house where they can have plenty of air. Fig trees planted out should be kept drier at the roots, but avoid extreme dryness. When the second crop is gathered keep the house cool and dry, ventilating fully except when frost prevails. Root-pruning or partial lifting being required it should be attended to as soon as the leaves give signs of maturity and whilst yet upon the trees.

PLANT HOUSES.

Azaleas.—Plants that were forced into flower by the new year and afterwards at once started into growth had the growth completed in good time, and have been moved to a cool house or given a sheltered situation outdoors. If these are required to flower again by Christmas they must not be kept too long in cool quarters, but should have a house with a temperature of 45° to 50°, so as not to necessitate so much heat later on. Such varieties as *A. Borsig* and *Narcissiflora* flower early naturally, and are very desirable. *A. alba*, *Fielder's White*, and *vittata elegans* also force readily. They do not require much training or tying. If any fixed shading has been used it should now be removed, so as to give the plants all the light possible for maturing the wood and buds, as without this it is useless expecting fine trusses of large flowers. The later-flowering plants should at once be tied into the required form, as if done before growth is quite complete the points of the shoots will assume their natural upright position.

Camellias.—Plants that flowered about this time last year, and were encouraged with heat and moisture to make and complete an early growth, have their bloom buds now swelling, and should be given a temperature slightly warmer than an ordinary greenhouse, or about 50°, in which the flowers will expand freely. Plants not likely to come into flower by the time they are required from the buds being in a backward condition, should be kept in a similar temperature to those being brought into flower, with a little moisture in the atmosphere; but there must not be any attempt at forcing, or the plants will start into growth and the flower buds will fall. Where these plants have been placed out of doors after their buds were set they should be taken in before there is danger from frost or heavy rains; the latter, from causing the loss of the roots, will induce the buds to fall. Thoroughly cleanse the foliage of any dirt that may have accumulated from insects or other cause.

Hardwooded Plants.—These must at once be placed in their winter quarters, and after such a season as the present should be in fine condition, and from the well-matured wood be better able to resist attacks of mildew. See that every plant as it is taken in is free from this pest. Any plants infested should be laid on their sides and thoroughly syringed with sulphur water, which can be made by putting water in a tub with 3 ozs. of flowers of sulphur to every gallon of water, stirring well every day for four days, employing the clear liquid, and being careful to keep it from the roots of the plants, or it will do serious injury. The lightest positions should be given such plants as *Boronias*, *Gompholobiums*, *Phoenocomas*, *Pimeleas*, and *Tremandras*, elevating them near the glass, and do not crowd them, or the plants will lose their lower leaves or be very much weakened. *Epacris* and *Eriostemons* will bear a lower temperature than most others, but they should have a temperature of 40° to 45°, and for *Leschenaultias* the temperature must not often fall below 45°, whilst for the general stock 36° to 40° artificially is suitable. Heaths should, if no separate structure exist for them, be placed at the coolest end or where more air can be given, but a separate house is much the best. The present is a good time for potting any Heaths that require increased root space, being careful to have the soil of the old ball thoroughly moistened through before moving, ramming the new soil quite as firmly as the old. No shading will be needed at this season, and no side air should be given for two or three weeks. Water will hardly be necessary for a few days after potting.

Cyclamens.—Encourage free growth by a genial atmosphere and temperature of 50° to 55°. Keep the plants near the glass, and supply clear weak liquid manure. The present is a good time to sow seed in pots or pans of good turfy loam with about a fifth of leaf soil and a free admixture of sand. The young plants obtained should

be grown on in a stove temperature, potted off singly when showing the second leaf, and as the pots are filled with roots transfer to a larger size, but avoid overpotting, and if well attended to the plants will flower the winter following, being very effective in 5-inch pots for decorative purposes. Plants from seed sown in spring are now neat little specimens in 3-inch pots, and should be transferred to 5-inch pots when they have filled the smaller size with roots, providing good drainage, and place them near the light in a house where growth will be encouraged.

THE BEE-KEEPER.

PREPARATIONS FOR WINTER.

"YOUR bees have butchered all the bees of one of my stocks and have taken all its honey," recently said one of our Bowdon bee-keepers to another. This is not a very common occurrence, but it occasionally happens. The bees of weak hives are sometimes over-mastered and killed by robbers more bent on plunder than war. September is a month of fighting and robbing amongst bees. The weather during this month is generally warm enough to induce them to fly abroad; and, as flowers so late in the season do not yield much honey, bees will have it elsewhere if they can obtain it. Hence their constant attempts to rob other hives, and to enter those not well defended. The fine weather of September, it may be safely said, is spent by bees in seeking and defending hoarded wealth. In this work there is a great loss of hives. Hives are often greatly reduced in strength, and the slain may be seen in heaps near the doors of hives which have been persistently attacked. Artificial feeding is the cause of many destructive battles, and therefore the administration of syrup in mild weather is not unattended with risk. Whatever feeding is necessary in September should be given as speedily as possible in order that it may be stored up and the bees settle down into the quiet of winter life. Continuous feeding now would keep the bees in a constant state of excitement, and cause them to eat the food given to them instead of storing it up. During the last six or eight weeks bees here have gathered no honey, and have had to live on what was stored up in July. During this time there has been an enormous consumption of honey. Hives that were well filled with honey and heavy at the beginning of August had lost much of their weight by the beginning of September, and during the last two or three weeks the consumption of honey has been great.

An examination of hives, minute and thorough, was suggested in a late issue of this Journal. Those who have not examined their hives should do so as soon as they conveniently can, and see that the hives are clean and cosy, also well stored with bees and honey. Many bee-keepers in the spring months of the present year found great difficulty in inducing their bees to leave their nests to take artificial food. Both top and bottom feeding failed to entice the bees to leave their combs, the weather was so cold. Proper attention to hives now would prevent the necessity of untimely feeding in spring, and keep the minds of apiarians at rest about their bees during the winter and early spring months. The various modes of feeding are understood and all are very good. We have boards with tin troughs in them sufficiently large to hold 3 quarts or 6 lbs. of syrup in each, which we use for rapid feeding in autumn. Such troughs, filled with good syrup and placed under strong hives, are emptied in two and three hours; and they are so constructed with tubes and funnels that they can be filled and refilled from the outside without disturbing the bees or uncovering the hives. The tin troughs in our feeding boards are 11 inches wide and 1½ inch deep. For the purpose of storing syrup rapidly large pie dishes and dripping tins with chips of wood in them can be used in hives not full of combs; and hives full of combs can be raised by ekes to admit the dishes and dripping tins between combs and boards. By-and-by the weather will be too cold for feeding bees—too cold for them to elaborate and store away food for winter and spring use, too cold for them to nurse brood if breeding commence.

As soon as feeding is completed the boards of hives should be well scraped and cleaned. If wet they should be dried or changed. If their doors are not already contracted, they should be for two purposes—viz., first to keep mice out, and secondly to prevent unnecessary loss of heat. If mice find access to hives in winter they are very destructive. The bodies of bees are not eaten, but after all are beheaded the mice eat the honey. As

bees like to close themselves cosily up in their winter quarters, and keep the cold out by using propolis in small cavities and crevices and in cementing the hives to the boards, we approve of the use of mortar for the latter purpose, for it tends to drive the rain that may fall on the boards off and outward.

The covering and protection of hives on the approach of winter is of more importance than many bee-keepers seem to believe. Protection from both rain and severe frost should be aimed at. Nothing answers better for an inner covering of hives than a good thickness of soft dry hay placed over and around them and pressed close. For an outer covering wheat straw well drawn out and combed with the fingers and neatly tied answers and looks well; indeed, no other kind of covering on hives looks so well. Straw covers are cheap, characteristic, and if well made and put on are ornamental. Roofing felt and other kinds of materials are used for covering hives. In large apiaries substitutes of all kinds are used as covers.

The distance for hives to be placed above the ground is a question of great importance. Our hives in summer are about 4 inches above the ground; in winter we like to have them about 8 inches above the level. Snow seldom is more than 8 inches deep. Hives should be above the snow line in winter in order to be kept dry, for wet boards in frosty weather may become too cold for the bees standing on them. Even if the moisture of boards do not become frozen, it will cause the combs to decay. After hives are covered and secured for winter very little, if any, attention will be required in the apiary till about the middle of February.—A. PETTIGREW, *Bowdon*.

FEEDING BEES.

"LEON" wishes to know if it will be necessary to feed a driven stock "all through the winter." As there seems to be a very general misconception in regard to winter feeding, I shall answer his query in a more general way. And first of all let me say that winter is the period when bees ought to be allowed perfect quiet and rest. Anything that disturbs them then inevitably causes a loss that cannot be repaired. Of all disturbing causes feeding is probably the most general. It is quite usual to find old-fashioned bee-keepers going round their hives in the dead of winter pouring in syrup at the crown hole or pushing in a wooden trough at the doorway. In either case the bees are tempted to leave the cluster probably never to return; robbers are invited to share the oozing spoil, mould and dysentery generally result, and spring finds the stock reduced to a handful if not dead.

"LEON'S" query admits of but one answer at this season—viz., feed at once, as rapidly as possible, all the stores the stock is likely to require till spring, say 15 to 20 lbs. of syrup; thereafter tuck up warmly and leave all quiet till spring.

Autumn feeding is, I think, a necessary evil. While it goes on the bees are kept in an unnatural state of excitement that results in reduced numbers. The little brood then raised cannot make up for the loss of the thousands that perish. The brood itself, if raised late, is frequently the cause of dysentery during the winter, since the young bees emerge from their cells with bodies distended with fæces, and if they do not get a cleansing flight soon the combs are soiled and the air poisoned, resulting in a general attack of dysentery. This leads us to the conclusion that necessary feeding should in autumn be completed as rapidly and as early as possible. Unsealed stores are also well known as a cause of great mortality in winter. The honey or syrup in open cells readily absorbs the vapours of the hive, swells in bulk, oozes out of the cells, rendering the whole hive damp, and finally poisons the bees. The end of September is late enough to feed any bees, but the earlier before then the better. As a matter of fact, I may add that all of my bees that have required feeding this autumn have dwindled to less than half their strength. Those not fed at all still cover all their combs. The latter, however, are not fully provided, but what they have will be all at once by filling their empty combs from a watering can.

Slow autumn feeding has sometimes another evil—it causes the queen to exhaust herself, laying at a time when the bees cannot raise brood. I have several hives in which eggs are always plentiful, but I never see a larva or a sealed brood cell; this is owing to the absence of pollen, which has been very scarce with us, what is in the hive being already so covered with honey or syrup that the bees themselves do not know where to find it.

The above remarks apply, of course, to syrup feeding, and are only partially true of candy-feeding. The latter may be safely practised all through the winter, but only in cases of necessity, as it still causes some excitement, and if flour is used will cause breeding at an untimely season. The time is now at hand when I propose to pack my stocks for the winter, leaving to

each only as many combs of sealed food as the bees can cover. According to my usual custom I shall place a cake of bee candy across the frames under the quilt, partly as a further supply, but chiefly as an excellent means of providing a winter passage over the frames where it is warmest. Over all and on either side of division boards I shall pour loose chaff, see that roofs are water-tight but well ventilated, close the doorways to within an inch or two, and bid defiance to a zero temperature. — WILLIAM RAITT, *Blairgowrie*.

TRADE CATALOGUES RECEIVED.

R. H. Vertegans, Edgbaston, Birmingham.—*Catalogue of Bulbs*.
Wm. Rumsey, Waltham Cross.—*Catalogue of Roses and Trees*.
Joseph Schwartz, Lyon, France.—*Catalogue of Roses*.
Thomas Meehan, Germantown, Philadelphia.—*Catalogue of Plants*.



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Work on Orchids (*A Constant Reader*).—The price of the last edition of Mr. B. S. Williams' "Orchid-Growers' Manual" is 7s. 6d., post free 8s., and not 6s. 6d., as was stated on page 232.

Beetle (*Inquirer*).—The insect forwarded is one of the Sexton or Burying Beetles (*Necrophorus Vespillo*), a widely distributed species, and of some utility, as the beetles seek out and bury dead grubs, &c., in which the eggs are laid and the larvæ afterwards feed.

Heating by Gas (*A. G.*).—Heating by gas is not much employed, or only on a small scale; but you would probably obtain the information you require from Mr. Clarke, Vinery House, Allerton, Liverpool.

Grecian Agriculture (*R. B.*).—You had better consult Jebb's "Modern Greece." You will find that the cultivation of its soil is profitable and progressive. The culture since 1830 has increased of Olives, threefold; of Figs, sixfold; of Currants, fifteenfold. The last-named occupy nearly forty thousand acres.

Indexes (*M. H.*).—Your suggestion is an excellent one, and we only refrain from publishing it on the ground that disappointment would be caused by many who would find it impossible to carry out the project, as the necessary materials are not obtainable.

Violets Unhealthy (*A Gloucestershire Subscriber*).—Your plants have been much infested with red spider, these insects having attacked the under sides of the leaves and extracted the juices from them. Violets should be grown in a partially shaded place in the summer, such as the north side of a hedge or wall, but not under trees. You had better remove the runners, together with the worst of the leaves. The insects will do little if any more injury at this late season, and the leaves that will be produced will be green and healthy.

Vine Leaves Discoloured (*Idem*).—There is nothing to be alarmed at about the Vines; but no doubt it would be advisable to remove a little of the surface soil from the border, so that fresh loam can be placed in contact with the roots, and over the loam a layer of rich manure 3 or 4 inches in thickness, where it should remain to decay. This will induce the increase of feeding roots, and the Vines will be invigorated.

Caterpillars (*Idem*).—You can only eradicate those on the Savoy by hand-picking, but they might in a great measure have been prevented by frequent dustings of soot when the plants were young. If you dust them now it will not be easily washed off those parts required for cooking. The best means of preventing the recurrence of an attack on your Gooseberry and Currant trees is to remove 2 or 3 inches of the surface soil as soon as all the leaves have fallen, and add fresh soil, manure, or tan. You may dress the surface of the ground under the trees with soot and gas lime in the spring, a small handful of the latter being quite sufficient for each square yard of soil. Cyclamens need more heat than a cold frame affords to induce free growth and early flowers.

Growing Rhododendrons in Sawdust (*A. G.*).—Rhododendrons succeed well in sawdust, but it must be mixed with soil, and from its slow decomposition it supplies material similar to that obtained from peat beds. It will not be necessary to give water in winter, as the rainfall will be sufficient to keep the soil in a thoroughly moist condition, but in an unusually dry period in summer applications of water will be beneficial.

Suckers from Standard Roses for Stocks (*Young Gardener*).—If the suckers are taken up with a portion of root in early December and planted in rows in good soil they would grow, and after a year's growth they would be of sufficient strength for budding; but they send up suckers so freely as to be inferior as stocks either to the Manetti or seedling Briar. The name of the wild flower is *Scrophularia aquatica*.

Staging for Greenhouse (*Chas. Diamond*).—We are left to guess at an important element in your case—namely, the height of the stage No. 3 from the glass. If it is not above 3 or 4 feet probably the plants may succeed, especially as some of them may be tall; if not, they can be raised on inverted flower pots at the back of the stage. It is impossible, however, for us to give a satisfactory reply without knowing more particulars both of the house and plants. No one can give you a precise answer to your other question except Messrs. Messenger and Co. of Loughborough, who will readily give you the information you require in reply to a letter addressed to them.

Nectarines Cracking (*E. D. C.*).—The stone of the fruit you sent was very imperfect, the result either of defective fertilisation of the blossoms or a deficiency of calcareous matter in the soil; and when the stones are imperfect the fruit often shrinks and cracks. When your tree is flowering gather pollen from a free-setting variety of either Peach or Nectarine and apply it to the flowers; it can be easily done with a camel's-hair brush; or a rabbit's tail or a dried plume of the Pampas Grass brushed lightly over the flowers at noon on two or three consecutive fine days would probably be beneficial.

Lifting Peach Trees (*Durham*).—If the buds are prominent we should lift the trees now, shading them for an hour or two occasionally if bright weather should prevail, and sprinkling the foliage if needed to maintain its freshness. The trees would then produce fresh roots before winter, and would grow and fruit next year as if they had not been removed, except we should expect the growth to be better and the fruit finer, assuming that at present the soil is not satisfactory and the root-action defective. If the buds are not prominent we should allow the trees to remain ten days longer before lifting them. You give us no information relative to the age and condition of the trees, or our reply might have been more explicit and possibly more useful.

Caterpillars on Viburnum (*W. J. E.*).—Pour boiling water on 2 or 3 ozs. of hellebore powder and stir well, then add sufficient water to make a gallon of the insecticide. With this syringe the bush, and if the water is applied as hot as the hand can be borne in it, it will be the more effectual. Four ounces of quassia chips boiled for half an hour in a gallon of water, 2 ozs. of soft soap being dissolved in it at the same time, would probably be equally effectual if similarly applied. As soon as the leaves have fallen not only remove them but 3 or 4 inches of soil for a considerable distance round the shrub, and add fresh compost. If you adopt these measures you will not have so many caterpillars another year.

Fruit Trees for Espaliers (*W. M.*).—At 12½ feet distance apart you will have space for twenty-four trees. Of Cherries:—Empress Eugénie, May Duke, and Archduke may be selected, they being had on the Mahaleb stock. Apples on the English Paradise stock:—Mr. Gladstone, Kerry Pippin, King of the Pippins, Cox's Orange Pippin, Ribston Pippin, Reinette du Canada, Dutch Mignonne, Cockle Pippin, and Sturmer Pippin are suitable varieties; they are named in the order of ripening. Pears on Quince stocks:—Jargonelle, Williams' Bon Chrétien, Louise Bonne of Jersey, Comte de Lamy, Doyenné du Comice, Marie Louise, and Benrre Bachelier will form a good collection. Plums:—Early Proflig, Mitchelson's, and Victoria for culinary purposes; for dessert, July Green Gage, Green Gage, and Kirke's.

Wintering Lothian Stocks (*W. Wallace*).—We should pot them at once and place them in a shaded place out of doors until the occurrence of frost, then winter them in frames. They will endure several degrees of frost, especially if they are not too wet; indeed they should be kept rather dry during the severe weather of winter. Pentstemons may also be wintered in frames, protection being afforded when needed to exclude frost or nearly so. The pots will be better plunged in ashes or cocoa-nut refuse, and all decayed leaves must be promptly removed from the plants. These remarks apply equally to the Stocks. Two useful Apples are Stirling Castle and Dumelow's Seedling, both culinary varieties.

Hardships of Gardeners (*A. T.*).—We well know, and regret it, that not a few gardeners are expected to make bricks without straw, so unreasonably exacting are some employers. You are, however, adopting a wise course by making the utmost of the means at your disposal. A perseverance in this course will in time command approbation, and if your work gives evidence of superior ability it will sooner or later attract the notice of someone, and will eventually prove of advantage to you. Hasty changes, at the present time especially, are very unsafe, as every gentleman wanting a gardener has the choice of ten men. Under these circumstances it is only those men who can adduce the best evidence of ability who can hope to be appointed, and a man who is always moving is seldom able to produce such evidence. We could name men who were once not better, if as well, situated as yourself, who by following the course we have suggested—working assiduously in their calling and their own self-improvement, waiting patiently and moving judiciously, who now occupy leading positions in the gardening world.

Storing Fruit (*F. J.*).—We presume you cannot place a small stove in your fruit room in very severe weather. We should place the fruit on a thick layer of clean straw, and for a time at least ventilate the room freely; eventually after the fruit has dried ventilation becomes of less importance, and the room should be kept dark or nearly so, opening the door or windows occasionally to maintain a sweet atmosphere. During severe frost you might cover the fruit thickly with dry chaff, which is sweeter and better than cocoa-nut fibre refuse or sawdust, especially that from trees which contain turpentine. When fruit is spread on bare shelves it is often frozen through the boards on which it rests, however thickly it is covered. If you cannot preserve the fruit in the manner suggested, you may on the approach of severe frost pack it in large boxes with clean dry silver sand or chaff, and place the boxes out of the reach of frost. We have not, however, found this necessary, having had plenty of protecting material and used it.

Climbers for House Walls (*S. M. G.*).—For the west aspect:—*Aristolochia Siphon*, *Lonicera flava*, *L. odoratissima*, *L. Periclymenum*, and *L. sempervirens* var. *Browni*, *floribunda* and *Youngi*; *Clematis azurea grandiflora*, *C. montana major*, *C. Vitiella rubra grandiflora*, *C. Lincie Lemoine*, *C. Mrs. Hope*, *C. Vesta*, *C. purpurea elegans*, *C. Henryi*, *C. Jackmanni*, *Bignonia radicans*, *Cydonia japonica* and var. *alba*, *Jasminum officinale grandiflorum*, and *Roses Rêve d'Or*, *Bonquet d'Or*, *Anna Ollivier*, *Cheshunt Hybrid*, *Climbing Devonensis*, *Gloire de Dijon*, *Marcelin Rhoda*, and *Perle de Lyon*. South:—*Jasminum revolutum*, *Wistaria sinensis* and var. *alba*, *Berberidopsis corallina*, *Ceanothus azureus*, *Gloire de Versailles*, *C. integerrimus*, *C. floribundus*, *Escallonia macrantha*, *Magnolia grandiflora floribunda*, *Chimonanthus fragrans*, *Garrya elliptica*, *Lardizabala biternata*, *Passiflora caerulea*, and *Roses Maréchal Niel*, *Sombreuil*, *Perle des Jardins*, and *Innocente Pirola*. North:—*Ampelopsis hederacea*, *Clematis Vitalba*, *Hedera (Ivy) canariensis*, *H. palmata*, *H. Ragneriana*, *Crataegus pyracantha*, *Forsythia suspensa*, *Tropaeolum speciosum*, and *Jasminum nudiflorum*.

Ventilating a Vinery (*F. Walker*).—When Grapes are grown in an unheated vinery beyond doubt it is advisable to close as early in the afternoon as possible during the growing season. No stated time can be determined for opening and closing a vinery, this not being a question of clockwork at all but solely one of temperature. Assuming that the thermometer in the house registers 60° before the sun reaches the structure in the morning we should, when the heat reaches 65°, open the top lights slightly, but not sufficient to cause the mercury to fall to 59°. We should open the lights still wider at 70°, and again at 75°; but in neither case sufficiently so to cause the temperature to fall. At 80° we should give a little front air, and if the heat still increased should open both front and top ventilators, and allow the maximum temperature to remain as near 85° as possible, the thermometer being perfectly shaded. Early in the afternoon as soon as the heat commenced declining we should first reduce the front ventilation, then the top, with the object of maintaining the heat at 85° as long as possible, and close the house when we were certain that temperature would not be exceeded afterwards. At night we should open the top lights slightly and leave them open, as we do not approve of a perfectly close vinery in the summer. As there is Peaches in the house it will be necessary to keep the house as cool as possible during the winter to retard the starting of the trees in spring, and possibly, having regard to the position and state of the trees, we should open the front ventilators sooner; but, having regard to the Vines alone—and it is only in respect of these that you ask information—we have described what we consider the proper method of ventilation. The moisture, as a rule, should be governed by the temperature.

Trees and Shrubs as a Screen for Building (*S. M. G.*).—The quickest-growing deciduous tree is Lombardy Poplar, and in evergreens Corsican Pine, but it is not so dense in growth as the Austrian Pine. Other deciduous trees are Acer platanoides, Esculus Hippocastanum, Betula alba, Platanus occidentalis, Tilia europæa, Ulmus montana, Quercus rubra, Acer Pseudo-platanus, A. rubrum, Fagus sylvatica, and F. purpurea. The following deciduous shrubs or small trees are suitable for planting—Amelanchier arbutifolia floribunda, Cerasus Padus, Cytisus Laburnum alpinum, Deutzia crenata flore-pleno, Philadelphus coronarius, Pyrus Aucuparia, P. Aria, P. prunifolia, Rhus glabra, Crataegus oxyacantha var. coccinea plena, multiplex, rosea; Spiræa aræfolia, S. prunifolia flore-pleno, S. callosa superba, Syringa vulgaris and alba, Viburnum opulus, and Weigela rosea. Of evergreen shrubs—Aucuba japonica, Berberis Darwini, common and Portugal Laurel, Hollies in variety, and Viburnum Tinus. We should plant the deciduous trees at the back, and with Yew and Holly, so as ultimately to form a good undergrowth of evergreens, as those thrive well under deciduous trees provided the latter are thinned in due time. The lesser trees and shrubs we should dispose in front so as to form an ornamental shrubbery, having a good breadth of Rhododendrons on the outside. If you employ Conifers they must not be mixed with deciduous trees if they are to remain permanently, though you may have Lombardy Poplars at the back and Austrian Pines in front.

Peach Trees Unhealthy (*F. C.*).—The fact that the tree planted out produces fine green leaves while those in pots have small yellow foliage suggests that the latter do not obtain the nutriment they require. Some mistake may have been made in watering, either by saturating the soil before the roots were in an active state or, on the other hand, permitting the soil to be too dry as the trees advanced in growth. If the pots are very full of roots the latter is probably the case, and top-dressings of manure would also have been beneficial. Have you Mr. Rivers' work on the orchard house? If you have, you cannot do better than follow the instructions it contains. If you do not possess the work you had better obtain it; it is published by Longmans, and can be had through a bookseller. As your young trees are so liable to injury by frost we should certainly pot them as you propose. Loosening the ligatures would be safer than removing them at once, but the condition of the stems and buds must guide you in this matter. The most complete work on practical gardening is McIntosh's "Book of the Garden," published by Blackwood & Sons, London and Edinburgh. Your other questions shall be answered next week.

Plants for Shaded Borders (*S. M. G.*).—The following selection includes such plants as you require—Aconitum pyrenaicum, Ajuga genevensis, Allium victorale, Anemone apennina, A. nemorosa plena, Aronæum glaciale, Aubrietia græca, Arabis alba, Caltha palustris plena, Campanula aggregata, Colchicum autumnale var., C. speciosum, Convallaria majalis, C. polygonatum, Cyclamen hederifolium, Epigaea repens, Snowdrops, Daffodils, Winter Aconite, Helleborus niger maximus, H. orientalis, Hepatica angulosa, H. triloba vars., Mimulus vars., Omphalodes verna, Peonia vars., Primula acaulis vars., Ranunculus aconitifolius plenus, Rhododendron hirsutum, Scilla siberica, Hypericum calycinum, Symphytum album, S. orientale, Trollius europæus, T. napellifolius, and Violets.

Names of Fruits (*M. D.*).—1, Cellini; 2, Dumelow's Seedling; 3, Ecklinville Seedling; 4, Cox's Orange Pippin; 5, Beauty of Kent; 6, Court Pendu Plat. (*G. Wells*).—1, Cockpit; 2, Norfolk Stone Pippin; 3, Red Autumn Calville. The Pear is probably Suzette de Bavay. (*H. C. P.*)—14, Grosse Calebasse; 35, Fondante d'Automne. We cannot identify the others from the specimens sent. (*H. G. M.*).—1, De Neige; 2, Lord Lennox; 3, Red Ingestrie; 4, Beurré Capiaumont; 5, Swan's Egg. (*A Subscriber*).—We cannot identify the sorts from such poor specimens. (*R. P. Williams*).—The Apple you have sent this week is undoubtedly Cellini, and if the one sent last week is not the same variety produced by a different stock it is the Nonsuch. There are such variations in fruits that it is often impossible to determine the name of a variety from a solitary specimen. (*J. M. Hopkins*).—The seedling Apple does not appear to be of any special merit; but a single specimen is not sufficient whereon to found an estimate. (*G. F. W.*).—It appears to be a highly coloured example of Gravenstein. It is said to have originated in the garden of the Duke of Augustenberg at the castle of Grafenstein.

Names of Plants (*F. W.*).—Peganum Harmala. (*P. H.*).—A variety of Stapelia Bufonia. (*Inquirer*).—1, Adiantum venustum; 2, A. Capillare-Veneris variety; 3, Selaginella cuspidata; 4, Polypodium vulgare var. cambricum; 5, Specimen not sufficient to determine the species; it is one of the Aspidiums; 6, Nephrolepis cordifolia. (*F. T. Arnold*).—The Begonia with narrow leaves is B. angularis; the other is B. Sambo. (*H. C. T.*).—1, Chrysocoma Linosyris; 2, Helianthus multiflorus. (*M. H. M.*).—The plant with broad leaves is Olea fragrans, and has been grown in England for more than a hundred years. The plant with small Orange-like fruits is Ægle scapiaria, occasionally seen under the name of Citrus trifolium. It is included in the Orange family, and is closely allied to the genus Citrus. Both the Ægle and the Olea are natives of Japan. (*T. W. G.*).—Francoa ramosa. (*J. C.*).—Trachelium coeruleum. (*G. W. C.*).—The specimen is insufficient for satisfactory determination, but it resembles Solidago Virgaurea.

Hives Deserted (*Subscriber*).—The hives with many drones which you lately found cleared of bees was lost through robbery, invited by its undoubted

queenlessness. We presume it was not a moveable-comb hive, else its state would surely have been discovered in time to prevent its ruin. The brown colour of the combs we take to evidence their having been used at one time for breeding purposes. The crumbs at the entrance are the débris of cells and cappings torn down by the robbers. The other stock found deserted and in similar condition had probably suffered from the same cause. The remedy in such cases is to make sure that all parent stocks and after-swarms are provided with laying queens within three weeks from swarming.

COVENT GARDEN MARKET.—SEPTEMBER 28.

WE have nothing new to quote this week beyond a better demand for good Peaches and Pines.

FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples.....	½ sieve	1	0 to 3	0	Lemons.....	per case	18 10 to 30 0
Apricots.....	doz.	0	0	0	Melons.....	each	1 0 2 0
Cherries.....	per lb.	0	0	0	Nectarines.....	dozen	1 0 6 0
Chestnuts.....	bushel	0	0	0	Oranges.....	per 100	0 0 0 0
Currants, Black..	½ sieve	0	0	0	Peaches.....	dozen	1 0 9 0
" Red.....	½ sieve	0	0	0	Pears, kitchen..	dozen	0 0 0 0
Figs.....	dozen	0	6	1 6	Pears, dessert..	dozen	1 0 2 0
Filberts.....	per lb.	0	0	0 9	Pine Apples....	per lb.	3 0 4 0
Cobs.....	per lb.	0	0	0 8	Strawberries...	per lb.	0 0 0 0
Gooseberries....	½ sieve	0	0	0 0	Walnuts.....	bushel	0 0 0 0
Grapes.....	per lb.	0	6	4 0	ditto.....	per 100	0 0 0 0

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4	0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0	0	0 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	per lb.	0	3	0 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1	0	2 0	" pickling.....	quart	0 0 0 5
Broccoli.....	bundle	0	9	1 6	Parsley..... doz. bunches	3	0 4 0
Brussels Sprouts..	½ sieve	0	0	0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0	6	1 0	Peas.....	quart	0 9 1 3
Carrots.....	bunch	0	4	0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	per 100	1	6	2 0	" Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0	0	3 6	Radishes..... doz. bunches	1	6 2 0
Celery.....	bundle	1	6	2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts..... doz. bunches	2	0	4	0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0	4	0 6	Scorzonera.....	bundle	1 6 0 0
Endive.....	dozen	1	0	2 0	Seakale.....	basket	0 0 0 0
Fennel.....	bunch	0	3	0 0	Shallots.....	per lb.	0 3 0 0
Garlic.....	per lb.	0	6	0 0	Spinach.....	bushel	3 0 0 6
Herbs.....	bunch	0	2	0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0	3	0 4	Vegetable Marrows	each	0 0 0 1



POULTRY AND PIGEON CHRONICLE.

CONTINUOUS CORN-CROPPING AND CLAY FARMING.

(Continued from page 279.)

HAVING previously quoted from Mr. Prout's pamphlet the account and method of draining his purchased estate at Sawbridgeworth, we will now make a further quotation referring to its original state and condition, and the means adopted to bring the land and fields into a state fit for steam culture. He states, "The two farms enclosed within one ring fence I found subdivided into fifty-one enclosures, averaging under 9 acres each. Straggling internal fences, encumbered with brushwood, pollard trees, and other inferior timber wasted a great proportion of the ground, hindered the proper expedition of tillage operations, harboured weeds, birds, insects, and vermin, injuriously shaded both land and crops, and would have been of great expense to reduce into neat form and to keep trimmed and in repair. In four years I grubbed up nearly six and a half miles of ancient hedgerow, removed crooked banks, and filled-in the ditches alongside; the whole area of the two farms into nine principal fields of nearly 50 acres each, arranged generally in quadrilateral figure."

We have copied this statement, as it shows how the face of these farms, together measuring 450 acres, was relaid out and made available for steam cultivation. These farms in their former state represent the condition of hundreds of farms at present existing in different counties, many of which under existing circumstances of agricultural depression will come into the owners' hand to be remodelled or let to great disadvantage. Mr. Prout's outlay and expenditure and system of laying-out will prove to some extent the best policy of proceeding to improve the occupying and letting value of clay land farms, especially if

used as arable land, and to some considerable extent if laid into pasture. The total cost of drainage, outfalls, wells, reservoirs, alteration of buildings, clearing of hedges and trees, levelling, reclaiming, and remodelling the plan of the farm, amounted to about £4500, or £10 per acre. He, however, as owner, gained 18½ acres of land, while the rental of the farm was largely increased; also from being, as in its former state, quite uninviting to an occupier, would in the future be sure to command a tenant of capital and experience.

It will be well to examine whether this farm and the system of cropping adopted can advantageously be compared with the ordinary systems of management commonly practised upon such land in various districts of the kingdom. As a landlord's question it is important to understand the benefit of the estate improvements, and also original cost thereof. It appears that the first cost of the 450 acres of land in the year 1861, then in two farms, amounted to the sum of £15,000. The purchase also of corners to straighten the boundaries, together with legal expenses, came to about £1000, thus making the total purchase money £16,000, or £35 per acre; but adding £4500, the cost of improvements up to the year 1865, made the cost to stand at £20,500, or £45 per acre, and making the improved rent 35s. per acre. In the year 1875, or ten years after the above estimate was formed, the estate was valued by a well-known and competent surveyor at 45s. per acre, and fixing the value of the fee-simple at £31,000, or £69 per acre; a considerable portion of this augmented value no doubt being due to the system pursued by the occupier.

We must now look to the other side of the picture, for without doubt the unfortunate agricultural depression which has prevailed since 1875 has caused a serious diminution in the value of this estate, notwithstanding the large outlay in stocking and tillage, and the intelligent and practical management of the farm under a new and peculiar system. The history of the tillage upon Mr. Prout's farm is well worth the study of the home farmer as well as the proprietor of the land. The cost of steam tillage and extra labour of various kinds was great, especially in the first four years, yet no amount of horse labour would have accomplished the operations in the same time so as not to miss seasons, and without injury to the land by the trampling of horses. We must further point out that much encouragement for improvers is to be derived in Mr. Prout's statement from the progressive diminution of steam tillage expenses on this farm, the average of thirteen years having been 429 acres, and for the last four years 301 acres. In like manner the cost of manual labour, the average for thirteen years, having been £509, whereas the average of the last four years was only £455. These economical results are evidently due to the greater friability of the soil, gradually effected by the action of thorough drainage, and the influence of deep as well as mechanically efficient culture by steam power. Again, rotation of cropping, the basis of ordinary arable husbandry, is unknown upon this farm. On looking at the tabular synopsis of cropping it will be found that of late years, since a rotation has become possible, about six-sevenths of the whole area have been always under corn, while the acreage of roots has been little. For the five years ending 1874 the bare fallow was nil, the breadth of roots reduced to a plot of a few acres, the average extent of corn 360 acres, and the average crop of hay made from artificial grasses 71 acres, while latterly the cropping has been about six-sevenths of the farm with cereal crops, and the remaining seventh hay, all sold off. During the first nine years no Red Clover was sown, the land being Clover-sick, since then about 50 acres of Clover have been grown annually—in other words, 348 acres of Clover have been sold for £4520, equal to £12 19s. 9d. per acre during the seven years from 1872 to 1878. The proportion of Wheat grown in the years 1872-74 was increased, because it was found that whatever might be the yield or the market price of Barley or of Oats, the Wheat crops made from £2 to £3 more money. Since then, however, and until last year (1880) more Barley has been grown, and in 1878 and 1879 the breadth of Barley approached to double that of Wheat.

Having no order or exact rotation of crops a major portion of the Wheat follows Wheat; some is sown after Barley, some after Oats, and a part after Clover. To enable such a succession of crops to be taken with advantage we must have a soil which shows by analysis that its contents possess the requisite amount of plant food. In Mr. Prout's case he very judiciously obtained the valuable advice of Dr. Voëlcker, in order that theory and practice might be made to agree upon the best-known terms. According to a careful analysis of the soil of three fields, which it was assumed represented the average of the farm, and by confining attention to the more important soil constituents, the three fields contained per acre in a depth of only 6 inches, and in a readily available form (without giving minute details, for which we cannot here find

space), we find according to the given data that 6 inches of soil from one of these fields called "Broadfield" contain as much phosphoric acid as 118 good crops of Wheat of 40 bushels, and 2 tons of straw; as much potash as 212 crops, and as much sulphuric acid as 215 crops of Wheat; and that 2256 crops of Wheat contain no more lime, 1120 crops no more magnesia than is found in 6 inches of this soil. In the case of a field called Blackacre was found in 6 inches of soil as much phosphoric acid as in 171 crops of Wheat. Of potash 272 crops of Wheat, of lime 5176 crops, and of magnesia as in 391 crops of Wheat. The same calculations have been carried out applying to crops of Barley, and they afford clear evidence of the enormous quantities of plant food which lie buried in only 6 inches of an acre of clay land; 2 or 3 feet of such land, practically speaking, contain almost unlimited stores of mineral plant food. Now, although it seems almost incredible that clay soils should possess such extraordinary powers of production, yet it is almost equally incredible that the resources of the soil are not more drawn upon in our systems of cropping and better understood as to the tillage required to obtain such advantages. These statements are full of truth and of practical knowledge, because no man is better able to elucidate these scientific results than Dr. Voëlcker; and as he has been Mr. Prout's adviser from first to last in the conducting of his farming business, it confers equal credit on Mr. Prout as having acted under the directions of Dr. Voëlcker, and on Dr. Voëlcker for having contributed by his scientific knowledge and research so great a boon to the agriculturists of our country. At the present time of agricultural depression, when the idea that the growth of corn is unprofitable, and that strong heavy lands should be laid into permanent pasture is very general, not only amongst tenant farmers, but also amongst the owners of estates and the home farmers also, it will be our endeavour to advise the home farmer upon the subject.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Both horses and oxen are fully employed. There are still farmers to be found who persist in the use of oxen, and we approve of them in the absence of steam power, because they can when purchased or taken into work about the middle of July be made to render good service at any labour on the land from that time through the harvest and Wheat-sowing until all the land intended for roots or Barley has been fallow-ploughed. We know farmers now who prefer ox labour as a supplement to horse power instead of resorting to steam power; and this may answer upon light hill land, and thus reduce the number of horses, which grow out of value, whilst oxen improve when well kept during the working period, and are ready at any customary period to go into the boxes and be fattened for the shambles. Sowing Rye, winter Barley, winter Vetches, winter Beans, also sowing Trifolium where it may have failed; for we have sown it as late as November with success, but not without using an extra quantity of seed, say 30 lbs. per acre. Lifting Potatoes may still be continued by using the lifting frame attached to an ordinary plough minus the turn furrow, and where plenty of hand labour can be obtained a large area may be lifted in little time. The land after Potatoes, if fairly cultivated, will be clean and fit for seeding with Wheat if the soil is loamy and adapted for that crop; but in case of light land, either sand, gravel, or limestone, the land may stand over for Barley in the spring, which may be sown early. Clover seldom injures or delays the harvesting of Wheat as it does Barley; besides, Wheat when seeded to Clover should be cut higher, leaving the Clover plants entire, which we have found produce a good cutting for horses and cattle until November, when the frost comes. The only green fodder to cut at present is obtained on the Clover lea where the first and second cutting were delayed for the purpose of insuring a succession, or in seeds saved in the Wheat. The cultivation of corn stubbles should now be continued until the autumn rains set in, because there is plenty of time on the mixed soiled farms for ploughing and seeding for Wheat when the land has become too heavy for the continuation of autumn fallowing and cleaning. These observations, however, apply only to farms of mixed soils only, for on the hill farms there is plenty of work for ploughing and preparing and manuring for Wheat-seeding. In the same way the season for sowing Wheat cannot with safety be deferred on the clay land farms, especially where it is sown after fallow preparation or fallow crops, such as Tares and Mustard.

Hand Labour.—Men, women, and boys are employed in picking up Potatoes as fast as they are lifted or ploughed out. Stubble Turnips should now be finished hoeing as soon as possible. Upon some flat land the Mangold crop may now be pulled, carted, and stored at the homestead or in some field where they may be required for feeding sheep next spring or summer. If the crop is left too long on the land the carting of the crop may prove injurious to the land for a succeeding crop.

Live Stock.—The fattening bullocks on the pastures which are fit for sale should now be disposed of, retaining those in lower condition to be finished off in the boxes by root and cake feeding. Many farmers are afraid to commence the use of Mangolds for feeding the fattening

cattle at this period, but we have never hesitated in doing so in the month of September, the safeguard being pulling a week or ten days before using and feeding with a diminished quantity, together with barley or bean meal, instead of cake, or mixed with it. Many half-fat bullocks not good enough for the butcher will now be offered in the markets for sale, and these are the best to buy and put into the boxes for winter fattening, for they will make more profit than poor animals, however cheaply they may be purchased. The dairy cows have lately done well owing to the flush of grass produced by the heavy rains in August. The rainfall of that month, we understand, amounted to 7 inches. All these may do fairly for some time yet without supplementary food, but they should be carefully watched as to the milk they yield, for if it diminishes much the cows should have Cabbage, cotton cake, or meal, in order to lengthen the milking period. As soon, however, as they go dry they should be moderately fed without allowing them to gain flesh; it is from this cause that so many fine well-doing animals come to grief at calving time; for when they lay on fat internally during pregnancy they are more likely to suffer seriously either before or just after dropping their calves. All the young cattle, both yearlings and two years off, have done well lately. The only fear is that they may be attacked with quarter-ill, for although there is no remedy for this complaint it may often be prevented by allowing the animals a dry pasture as a night lair. The down ewes of every sort, which are now seasoned in lamb, should be kept with great regularity and moderately, for it is in the early stages of pregnancy that irregular or over-feeding is likely to produce abortion. This, however, is not so likely to occur with the long-wooled ewes which are fed chiefly on grass at this time of year. The horned Dorset and Somerset ewes are now near their lambing time—at least, those kept entirely for the production of the earliest lambs; still they should be only moderately fed until after yearning time.

VARIETIES.

WE are desired to state that the next Tredegar Show will be held on Tuesday and Wednesday the 22nd and 23rd November next, the entries closing on Monday, October 31st, 1881.

— THE poultry and Pigeon fancy seems to be extending to the Cape Colony. Possibly the presence there of General Hassard may have had something to do with this. Not long ago we heard of a show being held, and we now learn that ten White Fantails from the lofts of Mr. O. E. Cresswell have lately started for the Cape.

— WE have the schedule of the Oxford Show, to be held on October 26th and 27th, differing little from that of last year. Ducks are well treated with six classes; Dragoons have sixteen classes, Antwerps nine, Homers four, Turbits nine, &c.

— AMERICAN WHEAT.—It may now be accepted as certain that the quantity of Wheat available for export from the United States during the present season will fall far short of the exports for last year. The crop of 1880 amounted to 480,000,000 bushels; the crop of the present year is put at 355,000,000 bushels. Assuming that the reserve of seven million quarters left from former crops is drawn upon to some extent, and making allowance for the greater economy begotten of high prices, it is possible that, as in previous years, a third of the total yield may be available for export, but even then there would be a falling-off of very nearly 120,000,000 bushels. The crop, too, has not been secured in good condition. It is expected in America that the value of Wheat during the next six months will be 20 per cent. higher than during the corresponding period of last year.

— AGRICULTURAL STATISTICS OF IRELAND FOR 1881.—The Registrar-General has just issued his annual general abstracts of the agricultural statistics of Ireland for the current year. "These abstracts," says the *Irish Farmers' Gazette*, "reveal a more satisfactory state of matters than many would expect to find in Ireland at the present moment. They show that in spite of all the so-called distress and the terrible agitation which we have heard so much about, the actual condition of the country in a purely agricultural sense has within the past twelve months made some actual progress. Compared with last year the area under Wheat shows an increase of 5301 acres; Oats an increase of 10,437 acres; Bere and Rye an increase of 789 acres; Beans and Peas an increase of 1737 acres; and Barley a decrease of 7864 acres. There is thus in cereal crops a nett increase of 10,400 acres. Green crops show a still larger increase—namely, 21,755 acres; but this is wholly due to a very large increase

in the area under Potatoes, which is stated to be 33,643 acres more than in 1880. The larger breadth under Potatoes this year is perhaps mainly due to the plentiful supply of first-rate seed which the excellent crop of last year left in the country, and the renewed confidence which the great success of imported seed had imparted. The area under Mangold Wurtzel and Beet shows an increase of 3347 acres, and Vetches and Rape an increase of 839 acres; while in Turnips there is a decrease of no less than 7460 acres. In Cabbage there is a decrease of 7868 acres, and in other green crops a decrease of 756 acres. The decline shown in the Flax crop will to many be the most surprising feature of the abstracts. The area under Flax this last year is given at 147,085 acres, or no fewer than 10,455 acres less than in 1880. Total increase in the total extent of land under crops in 1881, 110,277 acres. It is exceedingly satisfactory to find in the stock of cattle an increase amounting to 32,962. In pigs there is an increase of 237,772; but in sheep there is a decrease of no fewer than 303,880—a circumstance that must be attributed almost entirely to the terrible prevalence of rot and other diseases."

— IRISH BUTTER AT THE DAIRY SHOW.—The following letter appeared in the *Times* of September 17th from Messrs. James Hudson and James Carter, the Judges of Irish butters at the Agricultural Hall last week:—"That there should be, in addition to the four prizes, fifteen exhibits very highly commended, thirty-one highly commended, and ten commended (and each one worthy of a prize) out of 141 entries, is a significant proof that Irish dairymen have not been slow to avail themselves of the opportunities afforded them by the instructions practically placed at their disposal by their agricultural society and by the teaching of such men as Canon Bagot and Mr. Robertson. In our experience we have never before seen such a fine display of Irish butter as the class referred to, nor one more likely to stimulate the consumption in this metropolis and its surroundings. There are a few specimens without any salt at all; but, with one exception, they are not good, which only confirms the experience of years that Irish butter of fine quality needs from one per cent. (or 1 oz. to 7 lbs.) of salt (not more) to preserve it, as Irish grass is weak owing to so much moisture. Our Irish friends are doubtless now convinced that, by indiscriminate use of salt, want of care in churning, indifference to scrupulous cleanliness, and not adopting packages to meet the requirements of the day, they have encouraged a prejudice which they now have the opportunity of altogether eradicating; and it is our firm opinion that if the result of this Show is only an earnest of what is likely to follow, there will be such an extended field for dairy operations in the sister country as will open up for it a most glorious future."

— AMERICAN MEAT IN LONDON.—"It would be interesting," says the *Daily News*, "to be informed what has become of the American meat sold out of the Central Market since the trade began in 1876. How much of it has been retailed as English meat at English prices? Our readers may be surprised to hear that up to the end of last month there has passed through the Central Market a grand total of 108,025 tons of American meat, as certified by Superintendent Stephens. Every year the American imports have increased with a steady strong stride. In 1876 there were received 5513 tons; in 1877, 14,641 tons; in 1878, 19,370 tons; in 1879, 20,751 tons; in 1880, 25,836 tons. During the present year the increase has been still going on, so that, though there has been a temporary relaxation of imports during the past few weeks, there have, from January to August inclusive, been received 21,914 tons, being 3163 tons more than during the corresponding period of last year. These figures, it should be remembered, refer only to dead meat, and there remains to be added the live stock slaughtered at Deptford. The increase in this direction is as remarkable as the other. In 1879, for example, there were killed at Deptford 28,615 American beasts and 10,457 sheep; last year the numbers were 63,704 beeves and 21,703 muttons. It would be a boon to the general public if the Markets Committee, who will be asked to inquire into the question of wilful obstruction, would, while they are about it, try and discover to what extent the ordinary consumer has benefited by this enormous importation of cheap beef and mutton during the past five years, if indeed he has benefited at all."

POULTRY AND PIGEONS

POULTRY NOTES.

At the Dairy Show we had many opportunities of learning what success poultry breeders in general have had this year. We think it may be taken to have been on the whole a fair average season. Some have had good hatches all through, but most people had many failures in February and March. Those who were fortunate enough to have eggs to set in December had good hatching results from these, but had some difficulty in getting the chickens through the severe weather in the early part of the year, and the size of the January-hatched birds is consequently below the average. At the end of March things mended with most fanciers, and there are plenty of April-hatched birds in all quarters. These have done better than usual this year, doubtless because there were few early chickens to soil the runs and absorb an unfair share of care and food to the detriment of the late-comers. We therefore expect that the later shows will not suffer much, if at all, from the partial failure of the hatching season. A point in their favour will be that the unusually early moult which we hear of from many quarters will undoubtedly lead to the old classes being amply filled. We anticipate a successful year for the Crystal Palace and all the later shows.

THE Islington Show being a month earlier than usual could not be expected to be up to the average. In many classes the birds were so raw and unformed that passing judgment upon them must have been a somewhat difficult task. A judge can only take the birds as he finds them and place them according to their present merits; but to a judge who is also a breeder, and who sees indications of latent excellences in the youngsters with half-grown hackles and invisible tails, it must often be a hard struggle to follow out this rule. Exhibitors, too, are sometimes inclined to be over-exacting, and expect the judge to place their exhibits not according to their visible points but according to his estimation of what they will be later on. The exhibitor knows what his birds will in all probability grow into; his acquaintance with the strain enables him to see much more in the youngsters than the judge can see: the exhibitor can predict with reasonable certainty where the judge can only see promise which may never reach fulfilment. The advantage of having a judge who has himself been a breeder is that he knows which points are of most importance in the breeding yard, and also knows what changes and improvements time is certain to effect. Taking the birds as they are, reasonable allowance may be made for such matters; and it is here that the judge who has actually kept the variety he is adjudicating upon has the advantage over the man who has merely picked up his knowledge in the show yard and from books; but a prudent judge will rather err on the side of allowing too little than too much for such changes.

A GOOD example of what we mean may be found in the Light Brahma classes. Here chickens are constantly exhibited with young feathers, which show a decided yellow or buff tinge. The owner, probably, is certain that this is merely the sap in the young feathers, which have only just grown or are still growing, and that another week or two will clear all this away and leave the feathers of the much-desired pure white. The judge who has been a breeder of Light Brahmas knows the parts of the plumage likely to be affected by any real impurity of colour, as also the indications which prove that what seems to be foul colour is merely sap. He can therefore make allowance for this seeming defect in cases where he is certain that it will not be permanent, while he makes no allowance for it in cases where he is uncertain as to whether it is or is not a real impurity of colour. The judge without practical experience must either exclude all birds which apparently are affected by the fault, and thus, perhaps, withhold a prize from the best bird in the class, or run the risk of admitting really foul-coloured birds to honours to which they have no claim. In some strains certain parts of the plumage grow full of sap and then clear off; in others these parts are liable to be permanently defective in colour. No judge should make any allowance for such doubtful matters. The defect being there, and there being an uncertainty as to its permanence, he is bound to count it as a defect. This may seem hard to the owner, who knows that in his strain such colour always disappears with the maturity of the feather, but it is the only basis upon which a fair decision can be arrived at.

Two matters in connection with the Show at the Agricultural

Hall seem to call for a special word of censure. There was much to praise. The awards were made known with commendable rapidity, the birds were well cared for in the matter of food, and the general arrangements were excellent, but upon some of the days of the Show the heat in the gallery was almost unendurable. A six-days show is bad enough at any time, but six days of such an atmosphere as the birds experienced on the Monday would have killed many of them. As it was we could almost see the combs of some of the cockerels growing, so much were they drawn up by the heat, while hundreds of the poor birds were to be seen gasping for breath. If there are means of ventilation in the Hall they should have been made use of, and if there are no such means they should certainly be provided by another year. That is one matter; the other relates to the judging of the class for table poultry. The prizes were liberal in this class and the entries were numerous, no less than twenty-eight pairs of chickens coming forward. They were judged by a poulterer, who in the first place ignored the conditions of the schedule by giving first prize to a pair of cockerels undescribed in the catalogue, while the class was for a "cockerel and pullet" or "pair of pullets," and the rules required the parentage to be stated; and in the next place, as we are credibly informed, made his awards without handling a single bird. How even a poulterer could tell the table qualities of a bird by merely looking at it in its pen passes our comprehension. The Judge seems to have acted on the principle, so far as he had any principle in his judging, that Dorkings were the best table fowls, and that large Dorkings were better than small Dorkings. We had no opportunity of handling the exhibits, but so far as appearances went we thought many of the other birds better than some of the winners. There were some good Houdans and also some meaty-looking cross-bred birds. These may or may not have been really better than the winners, but in any case they should have been handled and the quality of their flesh ascertained before any awards were made. The judging here was universally condemned, and we trust that by another year the Committee will find some means of having this class properly adjudicated upon.

CHICKENS IN AUTUMN.

AUTUMN is upon us; it is time, therefore, to give some hints on the management of chickens in autumn. If weather be only fairly favourable it is not a season in which we find it difficult to keep our poultry, the young birds especially, in good health. This, we well know, is not the opinion of all fanciers, but for our part we have always found it more difficult to manage chickens through the hottest months of summer than through the autumn. Much, however, depends upon whether our advice has been taken and a judicious system of thinning-out has been constantly kept up; if so, the good results therefrom are sure now to be visible. Wherever the fewest chickens have been reared these are the finest. Those which have suffered from summer catarrhs should now be outgrowing them, and all should be getting on apace. Cockerels in particular advance with amazing strides through September and October. Cold nights, combined with hot and sunny days such as we have lately been enjoying, seem to brace and stimulate them. It is perfectly wonderful what a fine month about this time of year will do for April and May-hatched cockerels in bringing them on. We have often, notably last year, quite despaired at Michaelmas of our cockerels, from their lateness, ever cutting a respectable figure at the great autumn shows, and then, so quick has been the progress of some, that by the time of the Crystal Palace Show cups have fallen to their lot.

As in summer heat and want of ventilation in the poultry houses are the chief difficulties against which we have to contend, so in autumn damp, both in the soil and in the houses, is the great enemy of poultry. First, then, as to the houses. We would rather keep poultry in the most tumbledown old cart-shed, provided it were really dry, than in the most elaborate house with damp flooring or an imperfect roof. Fortunately damp in houses is almost always remediable. If the roof is bad a new one must be put on such as we have often described. Patching is seldom satisfactory. If the floor is damp it must be excavated a foot, dry rubbish put in, and a floor of dry earth, raised somewhat above the surrounding ground, rammed down on the top of it.

Damp in the soil is a far more difficult evil to deal with, yet according to our experience far from an insuperable one. When poultry have complete liberty they will always find out dry corners in wet weather under some densely Ivy-clad stem, or slanting tree, or leaning wall. In bright frosty mornings they will escape the chilling exhalations of the ground by mounting some bough or fence.

It is a peculiar pleasure to us to watch our birds through the dim

autumn mists catching the first rays of the sun on railings which divide some low lying riverside paddocks. Where fowls are confined like protections and places of escape from cold and damp must be provided. A perch in the middle of a yard, after the fashion of a common tressle perch in houses, is a good adjunct to a run, and an old door leant against the corner of a paling will afford much comfort. In spite, however, of these and similar common-sense arrangements, if densely foggy mornings follow cold nights in autumn cold and roup will sometimes prevail, and then some nourishing stimulant, such as our old friend Spratt's food, should at once be administered.

Cockerels and pullets, as we have frequently observed, require somewhat different treatment. The former, when properly separated both from pullets and from the general stock of adult poultry, may without harm be brought on a little with special feeding; this, however, we should reserve for some time when they seem to flag a little or cease growing, unless they are particularly required for exhibition. Pullets, on the other hand, very seldom require such forcing. Now and then the fancier who is particularly desirous of winning some prize must resort to it. It is much to be able to show a pullet exactly at her best time. There is a particular nick of time just before she lays when a good bird of any breed looks handsome. Her comb sprouts and is rosy, and in a few days her size almost doubles. When she has laid six or eight eggs this beauty goes off again, her form seems to shrink; and if she is allowed to lay in one place till she becomes at all broody an early pullet will probably go into a deep moult, and not be again in show condition this year; therefore some experience in bringing on young birds is of much value. Till a pullet has begun to show rosiness of comb she may be retarded in doing so and in coming on to lay by being moved from her accustomed run to a strange one. Young birds are for the most part exhibited singly in these days; this much simplifies the management of exhibition chickens. When, however, a pair are required it is best to decide upon them some time beforehand, and let them run quietly together. If a cockerel and pullet be suddenly put together in the basket or pen a skirmish is sure to follow, and damage will be done. Those who breed solely for the table will, of course, be killing off, or have killed off, all their chickens as fast as they come on; we now write therefore chiefly for those who exhibit their picked birds, or who at least keep them for pleasure and ornament. A practical eye, or indeed that of any intelligent person, will soon distinguish those birds which are growing faster than their companions; if such be good all round, inferior ones should now give way to them. Many breeders of profitable poultry are now glad to purchase at moderate prices early chickens which fail a little in show qualities. Continue to weed out to the last, and there is every chance of the small and select residue distinguishing themselves at the Crystal Palace and Birmingham.—C.

OSTRICH FARMING IN SOUTH AFRICA.*

THIS work contains a great deal of useful practical information as to the management of an Ostrich farm in most of its details, and as to the kindred subjects of which it is desirable for the South African farmer to have a knowledge. With these matters we have, however, little concern, and we took up the book chiefly in the hope of finding something new or instructive upon the subject of artificial incubation, which is largely practised upon the South African farms. We must confess that our expectations were not realised. There is a chapter upon artificial hatching, but it is short and chiefly devoted to the ancient history of incubation. Mr. Douglass, it seems, is the patentee of an Ostrich incubator, and there is in his work an illustration of the "Heather-ton Incubating Room." An account of his incubator and of the method of heating used would have been especially interesting. Mr. Douglass is, however, silent upon these matters, and we can merely infer from some passages in which he characterises the allegation "that the smell of paraffin is injurious to the eggs and chicks" as "utter rubbish," and alleges that "if anything, the smell is good for them, acting as a disinfectant," that Mr. Douglass's machine is heated by lamp. From the way in which the author insists upon the necessity of giving the heat only to the germ floating at the top of the egg, keeping the bottom of the egg cool, and avoiding almost entirely any evaporation from the egg, it would also seem that his incubator is constructed upon the top-contact principle. The incubators are, we are told, so constructed that the eggs can be put in daily as laid; and Mr. Douglass truly asserts that the best proof of the perfection to which artificial hatching has been brought is to be found in the fact that from

80 to 90 per cent. of hardy chicks have been hatched from large numbers of eggs taken when fresh laid and incubated. All this renders us the more anxious for detailed information, but the author has doubtless good reasons for his reticence.

From the chapter on natural hatching we learn that the birds vary very much in their habits of sitting, some sitting so closely that the eggs are never cold, while others are constantly off for an hour or more at a time, and yet bring out nearly every egg. Nests are sometimes abandoned before all the chicks are hatched, and even though the eggs have thus grown quite cold the author advises the application of artificial heat, which will most likely cause them to recover and hatch out. The parents assist the young chicks, which "they know by instinct are fast in the shell," by breaking the shell with their breast bone, and "sometimes they will even take the chick by the head and shake it clean out of the shell." Neither of these processes would be much approved amongst fanciers of smaller birds, but we presume the young Ostrich is able to endure them without injury, as they seem to be expected from good hatchers.

The chief evil to which the young Ostriches are subject is one which has only developed of late years, and which is known as yellow liver. Mr. Douglass is inclined to attribute this disease to continued high feeding for the purpose of increasing the egg-production. He thinks this may have "gradually affected the stamina of nearly all our domesticated Ostriches, causing the progeny to be weakly and easily affected by change of weather or other unfavourable circumstances." From this the home-fancier of the large breeds of poultry, who is constantly feeding highly to produce size, may with advantage take a hint. As recently noted in a contemporary, it is an undoubted fact that liver disease has been far too prevalent of late years, amongst Asiatics especially. Here, perhaps, we have the key to the mystery.

OUR LETTER BOX.

Management of Poultry (J. B.).—Allow the hen to remain with the chickens as long as she is willing to do so. Feed them four times a day; oatmeal or barley meal and middlings will be best for the first and third meals; bread and ale for the second meal will help them to fledge, and by the time they have produced feathers the bread and ale may be left out and the chickens fed only three times. The last meal at night should be groats now; later on change for sound oats, barley, or wheat. Feed your hens in the morning with soft food, and give grain at night. Feed the grain separately and change it now and then. Mix your soft food so that it will crumble when thrown down and not be sloppy. Only give as much food as your hens will eat with avidity, and never leave any lying about. A constant supply of clean water and green food is most important. We published not long since a complete table giving the constituents of the different sorts of grain, &c. Spanish-Brahmas are a cross between the two breeds, and the prize-winning of the parents hardly adds to the value of the chickens. You had better procure some book upon poultry matters. We publish a small one, "The Poultry Book for the Many," sent post free for 6½d.

Peacomb (H., Essex).—A peacomb should not be high nor coarse, 1½ or 2 inches is quite high enough. It should be thick at the base, and fixed firmly on the head. The centre should have some blunt serrations. On either side, halfway between the base of the comb and its top, should be the distinct impression of another comb, similar to the centre, projecting merely, but in no way detached.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881.		Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
September.			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
			Inches.	deg.			deg.	deg.	deg.	deg.	deg.	
Sun.	18	29.725	58.7	57.3	N.W.	55.6	73.7	53.8	112.8	49.4	—	
Mon.	19	29.810	62.2	59.4	S.W.	56.3	68.4	57.7	101.1	53.6	—	
Tues.	20	29.861	62.3	56.3	S.	56.6	70.7	48.4	103.7	43.2	0.406	
Wed.	21	29.438	61.7	59.3	S.E.	57.3	65.4	58.2	88.3	53.4	0.010	
Thurs.	22	29.585	53.7	50.6	N.E.	56.8	60.6	47.8	78.7	47.0	0.247	
Friday	23	29.915	56.5	55.4	N.	56.3	62.3	51.0	81.3	51.3	—	
Satur.	24	30.186	59.3	56.9	S.E.	56.4	66.4	54.6	91.3	51.4	0.849	
		29.789	59.2	56.5		56.5	66.8	53.1	93.9	49.9	1.512	

REMARKS.

18th.—Fine bright warm day, a little lightning in N.N.W. at 10.15 P.M.
 19th.—Fine pleasant day, but not very bright.
 20th.—Fine bright day; rain at night.
 21st.—Very heavy rain, and thunder and lightning about 2 A.M.; dull damp morning; fair afternoon.
 22nd.—Dull day; wet evening and night.
 23rd.—Morning dull; fair afternoon.
 24th.—Dull day; wet evening and night.

Rather a dull week, with much rain, but the greater part of it falling at night. Temperature about 3° above the average.—G. J. SYMONS.

* *Ostrich Farming in South Africa.* By ARTHUR DOUGLASS. Cassell, Petter, Galpin & Co.



6th	TH	Woolhope Club, meeting at Hereford.
7th	F	Exhibition of Gourds at the Alexandra Palace (two days).
8th	S	
9th	SUN	17TH SUNDAY AFTER TRINITY.
10th	M	Sale of Bulbs at Mr. Stevens' Rooms, Covent Garden.
11th	TU	Royal Horticultural Society, Fruit and Floral Committees at
12th	W	[11 A.M.]

THE ROSE ELECTION.

THE results of the polling which I am now about to lay before the readers of our Journal, if proving nought else, decidedly affirm an increase in the lovers of exhibition varieties of the queen of flowers. In former elections the number of voters has never reached fifty, whilst now with a more restricted franchise no less than sixty-seven have sent replies, which are tabulated. If, as the wise man said, "In the multitude of counsellors there is safety," surely the present election should produce more useful as well as more reliable results. Some old names will be missed from the lists, but, on the other hand, we have replies from over twenty nurserymen, many of them very extensive growers, having a world-wide reputation, which must make the tabulated results valuable as a guide to those who need guidance; and I cannot help thinking, that while they are helping those with less experience to form their opinions, they are also doing themselves some benefit amongst buyers of Roses. I trust it is so.

Not only is this the heaviest poll "on record," but when forty-eight varieties have been asked for, it is the largest number of varieties that have been tabulated—very nearly one hundred Roses—all, in fact, are tabulated that reached double figures, and we may safely affirm that in the list published the best exhibition Roses are to be found. Yet at the outset, I am again struck by one extraordinary result I have noticed in previous elections—how few, how very few, Roses are considered by all the electors worthy of a position, not amongst the first twelve, but in the first forty-eight. Surely most of us would have said that at least a dozen Roses must be named by every elector, and yet the tabulated result shows us that only three are thus favoured. From this I think we may learn one thing at least—that peculiarities of soil, climate, and situation affect the character of the varieties and render some, most valuable to others, useless here and there. This, at least, is a reason for giving each elector his due, and acknowledging what each one of us know by practical experience, that the omission of a name or names in the forty-eight may mean, not ignorance, but an inability from some of these circumstances over which we have little or no control to bring out in anything like their proper character certain varieties, and hence their exclusion.

Again, we do know that certain years favour the perfection of certain varieties, and *vice versa*, and the varying position of some is thus accounted for—notably, for instance, François Michelin has not been seen so generally good for two, if not

three seasons, and as a result he has lost a place in the first twelve, and Etienne Levet has also narrowly escaped joining him. There are some other terrible lowerings of position, especially Victor Verdier, in 1877 No. 29, now 55; Emilie Hausberg, No. 23, now as low as 51. Of the latter I have only had a single bloom this year, and it might have been anything but its real self, so utterly worthless; but perhaps the most wonderful change is that of Edouard Morren, No. 19 in 1877, now No. 73! Equally extraordinary are the shifts upwards of some, especially E. Y. Teas, now No. 13, then No. 35; Comtesse de Serey, No. 24, as against 45 in 1877. Here I would just note that the nurserymen with their large stocks are almost unanimous in naming her ladyship, whilst probably not a few amateurs had with their past experience tried and discarded her. Those, who like myself, have retained one or two plants have been agreeably surprised this year by seeing how beautiful she is when in her glory—every inch a queen! But what is the rise of these two Roses compared to that of A. K. Williams, now No. 11, and Madame Gabriel Luizet, now No. 22, both of which were only introduced in 1877? There are other contrasts which may be made between the two elections; and to facilitate "comparisons," which Mrs. Partington says "are odorous," hence fitted to Roses, I have added another column—the position of each Rose in election of 1877.

I am bound to state that some electors seem to have considered that Teas were omitted, whilst others have purposely omitted them. Some feel that Hybrid Perpetuals and Teas cannot be compared together, and it appears to me that the number of electors feeling this is on the increase; nor is this feeling one to be passed by unnoticed, especially when it is mentioned by such Rose lovers as Rev. C. H. Bulmer and Messrs. G. Baker and Whitwell. The position, therefore, of the Teas is, perhaps, rather lower than it should be, and it has somewhat altered the condition of the poll. Possibly another year I may be able to meet the wishes of these electors by a general election with Teas excluded, but in a separate table.

Two or three voting papers with only twenty-four names have not been tabulated. Two or three electors also inadvertently named the same Rose twice, thus losing one vote; but one elector named the same Rose as A1 and as A3. This seemed to me inexplicable—how anyone could consider a Rose as in the best twelve, and second twenty-four. So I wrote requesting an explanation. To my greater surprise the voting paper was returned with the name scratched out of the best twelve, and a Rose named that had not been previously mentioned even in the forty-eight! This, it appeared to me, showed an amount of carelessness sufficient to make the return of no value. As one such return, though not absolutely destroying the value of the table for general purposes, does undoubtedly affect it, I felt myself compelled to reject the enigmatical return in question.

The schedule is familiar now to many readers of our Journal, but still I must again explain. The first column is the position of each Rose in the last general election, next the position in the present, then the name, date of introduction, and raiser of the Rose. Then A, B, C represent the first, second, and third-class votes of the amateurs, and the same letters with an asterisk the same votes of the nurserymen, and it will be noticed that the amateurs are for practical purposes as two to one, and now the list may tell its own tale.

RESULTS OF THE POLLING.

Position in General Election 1877.	No.	Name of Rose.	Class.	Age.	Raiser's Name.	Ama- teurs.			Total.	Nurse- rymen.			Total.	Grand Total.
						A	B	C		A*B*C*				
1	1	Marie Baumann	H.P.	1863	Baumann	44	1	0	45	22	0	0	22	67
2	2	Alfred Colomb	H.P.	1865	Lacharme	41	3	1	45	17	4	1	22	67
5,6	3	Brune de Rothschild	H.P.	1867	Pernet	36	3	6	45	14	4	4	22	67
3	4	Charles Lefebvre	H.P.	1861	Lacharme	43	2	0	45	14	4	3	21	66
10	5	Marq. de Castellane	H.P.	1869	Pernet	20	18	6	44	5	10	6	21	65
12	6	Duke of Edinburgh	H.P.	1868	Paul & Son	16	20	7	43	6	7	9	22	65
8	7	Louis Van Houtte	H.P.	1869	Lacharme	24	9	9	42	9	8	5	22	64
5,6	8	Maréchal Niel	N.	1864	Pradel	38	1	4	43	18	2	0	20	63
13	9	Marie Rady	H.P.	1865	Fontaine	17	20	6	43	10	3	7	20	63
4	10	La France	H.P.	1868	Guillot, fils	38	2	2	42	17	2	1	20	62
*	11	A. K. Williams	H.P.	1877	Schwartz	32	7	1	40	19	1	2	22	62
9	12	Etienne Levet	H.P.	1871	Levet	21	14	7	42	6	8	5	19	61
35	13	E. Y. Teas	H.P.	1875	E. Verdier	12	15	14	41	5	6	7	18	59
7	14	François Michelin	H.P.	1871	Levet	10	14	14	38	6	7	6	19	57
15	15	Dr. Andry	H.P.	1864	E. Verdier	8	16	13	37	3	4	13	20	57
11	16	Mad. V. Verdier	H.P.	1868	E. Verdier	9	16	10	35	8	8	4	20	55
14	17	Comtesse d'Oxford	H.P.	1869	Guillot, père	2	22	13	37	0	5	13	18	55
25	18	Dupuy Jamain	H.P.	1868	Jamain	4	11	18	33	0	5	16	21	54
21	19	Horace Vernet	H.P.	1868	Guillot, fils	8	14	17	39	8	5	1	14	53
32	20	Capt. Christy	H.P.	1873	Lacharme	7	16	14	37	2	4	8	14	51
20	21	Catherine Mermet	T.	1869	Guillot, fils	9	13	11	33	6	5	5	16	49
*	22	Mad. G. Luizet	H.P.	1877	Liabaud	5	18	12	35	4	3	6	13	48
16	23	Sénateur Vaisse	H.P.	1859	Guillot, père	3	10	21	34	3	6	5	14	48
44	24	Com. de Serenye	H.P.	1875	Lacharme	3	5	16	24	6	8	7	21	45
28	25	Reynolds Hole	H.P.	1873	G. Paul & Sen	5	5	19	29	4	6	3	13	42
17	26	Xavier Olibo	H.P.	1864	Lacharme	5	5	20	30	0	6	5	11	41
24	27	Ferd. de Lesseps	H.P.	1869	E. Verdier	3	11	16	30	0	6	4	10	40
36	28	Duc de Wellington	H.P.	1864	Granger	0	8	21	29	0	4	7	11	40
22	29	M. de St. Amand	H.P.	1864	Sansal	0	5	21	26	0	6	8	14	40
56	30	Beauty of Waltham	H.P.	1862	W. Paul & Son	2	4	16	22	0	2	13	15	37
47	31	Star of Waltham	H.P.	1875	W. Paul & Son	3	6	13	22	2	4	8	14	36
31	32	Marie V. Houtte	T.	1871	Ducher	1	7	17	25	2	5	4	11	36
38	33	Pierre Notting	H.P.	1863	Portemer	1	6	16	23	2	2	9	13	36
42	34	Fisher Holmes	H.P.	1865	E. Verdier	1	7	20	28	0	2	5	7	35
37	35	Souvr. d'un Ami	T.	1848	Belot Defon- gère	4	7	9	20	2	3	9	14	34
54	36	Dch. de Vallambrosa	H.P.	1875	Rigotard	3	4	16	23	2	4	5	11	34
26	37	Camille Bernardin	H.P.	1865	Gauticau	2	5	16	23	1	3	7	11	34
27	38	John Hopper	H.P.	1862	Ward	0	5	18	23	0	2	9	11	34
39	39	Souvenir d'Elise	T.	1855	Marest	3	10	8	21	5	2	5	12	33
*	40	Abel Carrière	H.P.	1875	E. Verdier	3	7	13	23	1	2	7	10	33
*	41	Le Havre	H.P.		Eude	0	5	17	22	1	2	5	8	30
49	42	Niphetos	T.	1844?		1	4	12	17	4	3	4	11	28
34	43	Devonensis	T.	1838	Forster	1	6	13	20	2	2	4	8	28
18	44	Mdlle. E. Verdier	H.P.	1869	Guillot, fils	5	7	10	22	1	2	1	4	26
40	45	Mdlle. M. Finger	H.P.	1873	Rambaux, sent out by La- charme	1	10	6	17	1	3	5	9	26
*	46	Duchesse de Morny	H.P.			0	4	15	19	0	0	7	7	26
48	47	Annie Wood	H.P.	1866	E. Verdier	1	4	13	18	0	2	5	7	25
45	48	Sir G. Wolseley	H.P.	1875	Cranstou	0	2	11	13	0	4	8	12	25
30	49	Prince C. de Rohan	H.P.	1863	E. Verdier	0	2	15	17	0	1	7	8	25
*	50	Marie Verdier	H.P.			0	4	8	12	3	4	5	12	24
23	51	Emilie Hausberg	H.P.	1868	Leévigne	2	6	9	17	0	2	5	7	24
43	52	Mons. Noman	H.P.	1866	Guillot, père	0	2	15	17	0	2	5	7	24
*	53	Duke of Connaught	H.P.	1876	G. Paul & Son	0	2	14	16	0	0	7	7	23
*	54	Duchess of Bedford	H.P.	1879	R. B. Postans, sent out by W. Paul and Son	2	7	6	15	0	5	2	7	22
29	55	Victor Verdier	H.P.	1859	Lacharme	1	3	11	15	0	0	7	7	22
57	56	Lord Macaulay	H.P.	1863	Ward	1	2	11	14	0	0	6	6	20
46	57	Mad. C. Wood	H.P.	1861	E. Verdier	0	0	14	14	0	1	5	6	20
*	58	Général Jacqueminot	H.P.	1853	Rouzelet	3	3	6	12	0	1	5	6	18
64	59	Duc de Rohan	H.P.	1861	Levêque	1	1	12	14	0	3	0	3	17
*	60	Mrs. Laxton	H.P.	1875	Laxton	1	2	8	11	0	2	4	6	17
63	61	Devienne Lamy	H.P.	1868	Levêque	1	2	9	12	1	0	3	4	16
68	62	Auguste Rigotard	H.P.		Schwartz	0	1	5	6	0	1	9	10	16
33	63	Mad. Lacharme	H.P.	1872	Lacharme	0	1	9	10	0	0	6	6	16
*	64	Mrs. Baker	H.P.	1874	Turner	0	1	12	13	0	0	3	3	16
69	65	Belle Lyonnaise	T.	1869	Levet	3	1	7	11	0	3	1	4	15
*	66	Countess of Rosebery	H.P.	1879	W. Paul & Son	1	2	7	10	1	1	3	5	15
55	67	Mad. Hip. Jamain	H.P.	1871	Garçon	1	5	4	10	0	1	4	5	15
*	68	Jean Liabaud	H.P.	1875	Liabaud	0	2	9	11	0	1	3	4	15
*	69	Exposition de Brie	H.P.	1865	Granger	0	4	6	10	1	2	1	4	14
*	70	Harrison Weir	H.P.	1879	Turner	1	5	3	9	0	1	4	5	14
67	71	Thomas Mills	H.P.	1873	E. Verdier	1	3	8	10	0	0	4	4	14
*	72	Mad. Lambard	T.	1877	Lacharme	0	1	6	7	0	3	4	7	14
19	73	Edward Morren	H.P.	1869	Granger	0	3	8	11	0	0	3	4	14
41	74	Mdlle. M. Cointet	H.P.	1872	Guillot, fils	0	1	9	10	0	0	4	4	14
*	75	J. S. Mill	H.P.	1874	Turner	1	2	5	8	1	1	3	5	13
*	76	Charles Darwin	H.P.	1879	Laxton	1	2	6	9	1	1	2	4	13
52	77	Hippolyte Jamain	H.P.	1874	Lacharme	0	1	9	10	0	0	3	3	13
53	78	Mdlle. Thérèse Levet	H.P.	1866	Levet	0	0	11	11	0	0	2	2	13
*	79	Penelope Mayo	H.P.	1878	Davis	1	2	4	7	0	1	3	4	11
59	80	Gloire de Dijon	T.	1853	Jacotot	0	0	9	9	0	0	2	2	11
*	81	Mad. Eug. Verdier	H.P.	1879		1	3	1	5	2	1	2	5	10
*	82	Duke of Teck	H.P.	1880	Paul & Son	1	1	5	7	2	0	1	3	10
*	83	Constan. Tretiakoff	H.P.		Jamain	0	1	3	4	2	2	2	6	10
*	84	Mad. Willermoz	T.	1847?	Lacharme	1	0	6	7	1	2	0	3	10
*	85	Louis Doré	H.P.	1878		1	1	2	4	1	1	4	6	10
66	86	Annie Laxton	H.P.	1869	Laxton	0	3	4	7	1	0	2	3	10
50	87	Abel Grand	H.P.	1865	Damaizin	1	2	6	9	0	0	1	1	10
*	88	La Rosière	H.P.	1874	Damaizin	1	0	6	7	0	0	3	3	10

* All the Roses marked with an asterisk were not tabulated in the Election of 1877; they may have received a few votes, but not more than nine—the lowest number scheduled.

Marie Baumann is again the leading Rose, and few of us will grudge her the position which most of us consider she deserves. She is easily A1 tested by first-class votes, as she has sixty-six first-class votes out of the sixty-seven voters. Indeed the position of the Roses is curiously altered if tested by first-class votes only, as shown by this table of the first twenty-four—

Marie Baumann	66
Alfred Colomb	58
Charles Lefebvre	57
A. K. Williams	56
Maréchal Niel	55
La France	50
Baronne de Rothschild	50
Louis V. Houtte	33
Marie Rady	27
Etienne Levet	25
Marquise de Castellane	25
Duke of Edinburgh	22
E. Y. Teas	17
Mad. V. Verdier	16
François Michelin	16
Horace Vernet	15
Catherine Mermet	15
Dr. Andry	11
Capitaine Christy	9
Mad. Gab. Luizet	9
Comtesse de Serenye	6
Sénateur de Vaisse	6
Dupuy Jamain	4
Comtesse d'Oxford	2

This is a very rapid falling-off. It is curious that with positions altered the first twelve are still "all there," a statement that could not be made of the second twelve.

In this election no note has been made of similar, or, as Mr. G. Paul well puts it, "too much alike" Roses. I think in future elections this should be done. It has been acted on by a few of the electors; and as connected with this subject I print Rev. C. H. Bulmer's list, the vote in each of the synonyms being given to the first-named.

REV. C. H. BULMER'S SELECTION.

1. Alfred Colomb	23. Monsieur Noman
2. La France	24. Horace Vernet
3. Marie Baumann	
4. Charles Lefebvre, syn.	
5. Brune de Rothschild	25. Lord Macaulay
6. Etienne Levet	26. E. Y. Teas
7. A. K. Williams	27. Capitaine Christy, syn.
8. Comtesse d'Oxford,	28. Duchesse de Vallam- brosa
syn. Hippolyte Ja- main.	29. Comtesse de Serenye
9. Marquise de Castellane	30. Reynolds Hole, syn.
10. Louis Van Houtte	Sultan of Zanzibar
11. Dupuy Jamain	31. Sénateur Vaisse
12. Mdlle. Eugénie Ver- dier, syn. Marie Finger	32. Elie Morel
	33. Annie Laxton
	34. Marquise de Gibot
	35. Fisher Holmes
	36. Madame Victor Ver- dier
13. Duchess of Bedford	37. Le Havre
14. François Michelin	38. Prince Camille de Ro- han
15. Marie Rady	39. Pierre Notting
16. Dr. Andry	40. Mad. Gabriel Luizet
17. Xavier Olibo	41. John Hopper
18. Abel Grand, syns.	42. Mrs. Baker
Marguerite de St. Amand, Princess Mary of Cambridge	43. Victor Verdier
19. Duke of Edinburgh	44. Duchesse de Morny
20. Duc de Wellington	45. Star of Waltham
21. Edouard Morren	46. Mrs. Laxton
22. Exposition de Brie, syns. Maurice Ber- nardin, Ferdinand de Lesseps, Sir Gar- net Wolseley	47. Countess of Rose- bery
	48. Earl of Beacons- field

Tea Roses in this election are omitted as exhibition varieties, not because the best and finest grown are not worthy of a place, but because so few exhibit them, while the comparative merits of Teas and H.P.'s stand on such different ground. Many varieties (H.P.'s) would have higher places, only I have given superior rank to those more generally exhibited, more constant in flowering, and robust in constitution.—C. H. B.

It is curious to note that two of these poll the same number of votes—viz., Eugénie Verdier and Marie Finger; and that the latter, which I for one consider the more robust, is steadily ousting its more aged rival, as may be seen by reference to their relative positions in 1877.

The number of Roses named by all the electors is 223, and of these as many as fifty-eight varieties had only a solitary vote.

The electors to whom we are all indebted for their returned voting papers are as follows—*Amateurs*: Miss Bulmer, Hereford; Miss Penrice, Norwich; the Revs. C. H. Bulmer, Hereford; A. Cheales, Brockham; H. H. D'Ombraiu, Ashford; J. M. Fuller, Bexley; W. H. Jackson, Bedford; J. H. Pemberton, Havering-atte-Bower; E. N. Pochin, Leicester; J. P. Tomlinson, Torquay; J. A. Williams, Yardley Wood; G. H. W. Watson, Coventry. Messrs. G. Baker, Reigate; H. B. Biron, Canterbury; James Brown, Heaton Mersey; J. Burrell, Heighington; F. Burnside, Farningham; John Choyce, Atherstone; A. Evans, Marston; G. H. Fewkes, Erdington; F. H. Gale, Hitchin; W. J. Grant, Ledbury; T. Gravely, Cowfold; A. K. Griffith, Edgbaston; P. Grubb, Warminster; T. B. Hall, Rock Ferry; T. B. Haywood, Reigate; J. Hinton, Warminster; G. Humphries, Chippenham; T. Jaxton, Bedford; E. Mawley, Croydon; J. Mayo, Oxford; E. Mitchell, Romford; G. Mount, Canterbury; F. C. Pawle, Reigate; Alfred Slaughter, Steyning; J. Sargant, Reigate; J. Sladden, Evesham; Joseph Smith, Warminster; A. G. Soames, Grimsby; J. Tranter; Upper Assenden; A. J. Waterlow, Reigate; W. H. Wakeley, Rainham; Ernest Wilkins, Sutton, Surrey; E. R. Whitwell, near Darlington. *Nurserymen*: Messrs. Bunyard & Co., Maidstone; B. R. Cant, Colchester; Cooling & Son, Bath; Cranston, Hereford; H. Curtis, Torquay; Davison & Co., Hereford; Dickson & Sons, Chester; Durbin & Co., Englishcombe near Bath; Farren, Cambridge; Francis & Co., Hertford; Frettingham, Beeston near Nottingham; Jefferies & Sons, Cirencester; Keynes & Co., Salisbury; Laing & Co., Forest Hill, Kent; Mack & Son, Catterick Bridge, York; J. Mattock, New Headington, Oxford; Merryweather, Southwell, Notts; Mitchell & Sons, Piltown, Uckfield; G. W. Piper, Uckfield; George Prince, Oxford; W. Rumsey, Waltham Cross; Stephen Treseder, Cardiff.

And now, a word of thanks to all who have helped. It is no formal word. I gratefully acknowledge the help and assistance I have received from both classes of voters, and the many kind letters which have accompanied the returns from persons whom I know only through the medium of our Journal, and whom I am never likely to meet and to give the warm hearty grip of hand which I would now do through its columns. We have a common bond of union in our love for the beautiful flower that gives happiness and hope to so many of the weary, careworn, and suffering in this life, and that adds a zest and pleasure to health and success—one and all, I thank most heartily.—JOSEPH HINTON, Warminster.

AUTUMN IN THE KITCHEN GARDEN.

To manage a kitchen garden properly daily attention is needed, and in autumn the work is almost as pressing as in spring. In spring a good supply of vegetables for the summer is the object in view; in autumn attention should be directed in the same way towards the winter supplies. True, not much cultivation can be begun at this time, but everything partly grown can be assisted, and that matured can be preserved.

Cleanliness is a great matter in the kitchen garden in autumn. Many take great interest in making neat beds in spring and dressing and keeping everything clean at that time, but in autumn it is allowed to become a forest of overgrown vegetables and weeds. "It does not matter," some may say, "as the ground will soon be all cleared, and then everything will be right;" and this may seem so, but what prospects to look forward to next spring, and what lots of weeds will appear amongst the young seedlings! Indeed one season's neglect, or what is supposed to be the saving of a few days' labour in hoeing or weeding in autumn, will cause weeks of work in the following season. Many may not be able to find much time to rake and sweep in the kitchen garden in autumn, but hoeing should never be neglected, and they must be busy and short-handed who cannot take a few hours weekly at this operation. Asparagus beds and bush-fruit quarters are always inclined to become weedy, and very dirty they may often be seen in autumn; but all who value a clean easily-kept garden will never allow this to happen. According to our experience it is surprising how easily a garden is kept clean if weeds are never allowed to make any progress.

The present is a good time to note down the merits of any particular vegetable or fruit in the kitchen garden, and any that has not proved satisfactory should be either thrown away or marked for removal afterwards. When any plant is in leaf and fruit it is much easier to form a just estimate of it than trying to remember it at midwinter. Now is also a good time to note the time each vegetable takes to gain maturity after sowing or planting. To crop a kitchen garden after the best system all crops should be

arranged for the following year before those of the preceding season are cleared off the ground. Next year our kitchen garden crops will not be planted at random; they are all allotted now, not only in memory, but also on a label placed on each space. It is surprising the help this is in a busy spring.

Many kinds of summer vegetables will now be over. Peas are mostly past, and Kidney Beans always go with the first frost. There is nothing gained by leaving these dry on the ground; but if they are collected into a heap, mixed with the sweepings of lawns and old soil, manure will be formed by spring good enough for the best of vegetables. In heaps of this kind weeds should never be placed, but decayed leaves of every kind may be used.

Those who delight in good vegetables generally try to save seeds of their favourite sorts, and this can now be seen to; the earlier in autumn the seeds can be ripened and saved the better. In very few cases is seed-saving attended to in a proper way, as few grow crops purposely to gather all the produce for seed. As a rule it is only what becomes too old before it can be used that is gathered for seed, and this is frequently too late in the season to give it justice. Last spring we exercised a little more forethought in this matter, as we sowed rows of several varieties purposely for seed, and we find the yield from these much better.

The experience of the past two or three winters should make us all prepare for another, and well it will repay anyone to make provision before the autumn is too far gone. Superfluous growth should not be allowed to remain, as it all impedes hardy development, and this is much wanted in winter. All kinds of Cabbage, Savoy, &c., which have made enormous side leaves might have most of them removed at once, as they only make the centres more tender, and they will die away in severe weather. Brussels Sprouts, too, generally lose their leaves in winter, and as these protect the sprouts they miss their protection more than they would do if they were taken off in autumn and allowed to grow exposed. The protection of roots will very soon demand attention. It is a bad plan to trust them all under one condition, the best way being to have some in the ground and some out of it, some at hand for use and others as a reserve.

Autumn-planted Cabbage should now be starting into growth freely, but slugs are often as troublesome now as any time in all the year, and the young plants must be carefully watched. It is a great matter to have them well established before the weather becomes severe, as they do not grow much afterwards, and when very small at such a time they are liable to die. Those who wish to be well provided for severe weather in winter will not allow the autumn to pass too far before being well supplied with protectors. Mats and canvas are too expensive to employ for everything in the kitchen garden, but a good rick of dried fern or bracken will be found of the utmost service.—M. M.

THE ARRANGEMENT OF CUT FLOWERS.

MR. LUCKHURST's articles are at all times instructive and profitable, but none, we venture to state, could be read with greater interest or profit than his recent contributions on the arrangement of cut flowers. He undoubtedly possesses great taste both in floral decoration and landscape gardening, therefore much weight may be attached to his teachings in this difficult branch of the gardener's profession. He has in the present instance turned his knowledge and experience to good account in explaining those principles which should guide every gardener in the selection and arrangement of cut flowers.

That there is, as a rule, an absence of taste among the majority of gardeners we cannot deny, since we have ample evidence to adduce in support of the truth of this assertion. And why is it so? Simply because in nine-tenths of such cases gardeners do not take the trouble to cultivate taste for artistic gardening. True, everyone is not in possession of this natural gift; but much bad taste might be avoided if gardeners were to strive to acquire an artistic knowledge of this branch of their profession by a systematic course of study. The arrangement of cut flowers tastefully is at all times a beautiful, instructive, and profitable study, and should receive greater attention from gardeners generally than it now does.

Unfortunately, to most gardeners the operation of arranging cut flowers is a mere mechanical one. No attempt whatever is made on their part to arrange the flowers with harmony or taste. So long as a few glaring masses of colour are huddled together in various receptacles, their ideas of taste are accomplished. We have frequently seen examples of very bad taste in this direction on the part of men holding good positions as gardeners, and from whom we should naturally expect totally different results. We will give one instance to support the foregoing remarks. This was the decoration of a dinner table, the colours selected being

of the most glaring type—yellow, scarlet, orange, and a smattering of pink; these were massed together in a large centrepiece, no attempt being made to relieve the mass of colour with a due proportion of greenery, or give it the least appearance of lightness, but having that flat heavy appearance which we need not describe. In the smaller glasses, too, the same style prevailed, masses of yellow being highly conspicuous in the shape of yellow Dahlias and other kindred flowers. This gardener, in response to a question as to the propriety of employing such glaring flowers for table decoration, informed us that there was “nothing like having large masses of yellow and scarlet for decorative purposes; it shows up well.” Here then, we think, was ample need for a knowledge of the rudiments of taste.

Again, with regard to bouquets. How many gardeners are there who can make a really tasteful bouquet? Their numbers are not legion, at least judging from the samples which we meet with at flower shows. Instead of a bouquet distinguished by lightness, absence of crowding in arrangement, soft and pleasing to the eye, we find them crowded and glaring, and altogether unworthy of the name.

Every young gardener who aspires to become a master of his profession should not neglect to cultivate a taste for the arrangement of cut flowers. He will not only find it useful to him in his profession. Depend upon it the services of a man holding this qualification are, and will be, much more valued by his employer, in addition to the greater amount of pleasure which a man derives from a systematic study of the laws of taste.—HORTUS.

PLUMS.

THESE have borne abundantly, but have not been similarly productive in all positions. Kirke's had a heavy crop against walls, but failed completely as pyramids and standards. Jefferson was equally fruitful both as wall trees and standards; indeed the latter gave much the finer fruit, probably owing to the standards not being so much affected by the drought as the wall trees. Green Gage has been much finer from trees on a south aspect wall than those of trees on an east aspect, and preceded the latter by ten days. The finest of dessert Plums, July Green Gage, shows a disposition to cast its fruit just before ripening, and, this having been its prevailing characteristic for some years, it has been discarded. Boidaerts Green Gage is very much larger than the old Green Gage, and is very fine; indeed, it is one of the very best, ripening in advance of Green Gage. De Montfort, although but of medium size, is of a fine deep purple colour with good bloom, and is first-rate, coming in by the middle of August. Jefferson invariably bears well, and in early and middle September is what Coe's Golden Drop is at the end of September and early October—indispensable from their surpassing richness. Kirke's has borne abundantly as usual, the fruit being large, roundish oval, deep purple, with splendid bloom, and in quality unsurpassed by any. Belgian Purple is unquestionably a fine Plum when it comes to perfection, but it does not succeed with me on a south aspect, the fruit gumming. Denniston's Superb bears freely as a standard, but if the weather be at all wet when the fruit is approaching ripening it cracks very much. Against a wall it thrives better, but to have Plums ripen perfectly when the season is wet, glass copings would pay the cost almost the first season by saving the crop; indeed, all stone fruits need to have water or rain kept from them after they commence ripening. The very finest of the Gages, Transparent Gage, has not borne freely; in fact it never does, and the least moisture causes the fruit to crack. The trees thrive best when allowed to extend freely, training in plenty of young wood even if the old wood has to be removed to admit it. Purple Gage, one of the richest of Plums, fruits indifferently when closely spurred, but treated similarly to Transparent it is free, the quality being unrivalled by any, Green Gage not excepted. Golden Gage is another kind that does not bear freely when the growth is restricted much, and being very hardy succeeds admirably as a standard or pyramid. Ickworth Impératrice if allowed to hang until it shrivels is richly flavoured, or if gathered when ripe and kept in a light airy fruit room, is, after a time, first-rate, and should be grown where late Plums are desired. It bears abundantly against a wall.

Does anyone know an early Plum named Mother; pale yellow streaked or spotted with red, with a white bloom? It was grown in some gardens over thirty years ago against south walls as an early Plum, and ripened early in August. It was larger than Mirabelle, and of fair quality. Is it synonymous with Drap d'Or? I will refer to the culinary Plums in a future issue.—G. ABBEY.

LILY OF THE VALLEY.—The delicate and fragrant flowers of these plants are always acceptable, and any means should be

adopted to prolong the supply. My plants were started early in the year, were continued under glass in a good light position, and assisted with liquid manure to make a strong growth; then, being placed outdoors in June, the growth was completed early, and the crowns are well developed. Such plants will force readily in gentle bottom heat and with a temperature of 60° to 65°. Those I have now introduced will flower by the middle of November. Imported or home-grown single crowns or clumps started before January need bottom heat to encourage growth before they are exposed to light, which should be done gradually. The bottom heat I find most suitable is about 90°, and top heat 60° to 65° to 75°.—X.

THE GLADIOLUS.

THE Gladiolus has not yet attained to the position occupied by many florist flowers, the cultivation of which has been reduced to the certainty of a science. The Gladiolus is still the subject of much diversity of opinion as regards what are essential points in its cultivation. If we visit a garden where a certain flower has been made a speciality we may expect to find the same flower better represented after the lapse of five or ten years. It is altogether different with the Gladiolus. The garden which half a dozen summers back could boast of corms by the hundred or thousand, may be at this date destitute of one representative corm derived from those. We have all our pet systems of cultivation, which all seem to fail under particular conditions. Several years ago, when on a gardening tour, I saw a splendid collection in a baronet's garden under the care of a shrewd gardener, who was a formidable competitor at the local flower show. The great secret in the cultivation of the Gladiolus, according to his opinion, was to be found in the mode of planting the corms. However, Gladioluses have ceased to be a feature in that garden long ago. The various theories regarding the deterioration of the Gladiolus and its dying-out in collections have been from time to time under discussion in this Journal, but so far I am afraid without any certain means of keeping the stock healthy having been broached. I have an amateur friend who buys corms every year, as he does his Hyacinths, and I had a friend in a large garden who worked on the same principle; but it is comparatively few, either gardeners or amateurs, who have money to spare for this purpose.

Since I have made a point of lifting late-flowering plants, which up to the beginning of October had not finished growth, and allowed them to “finish up” under glass, I have found a great improvement. There is no difficulty with early-flowering varieties, as in most seasons they make enormous corms. I have had a corm of Shakespeare, one of four from one root, which was over a foot in circumference; but the late variety, Meyerbeer, I never find complete its growth here without being lifted, and, of course, the corms are very small, though they flower freely. To ascertain the truth with regard to bought roots being superior to home-grown ones, I last spring bought, amongst others, duplicates of some of the newer leading varieties, and found on comparing these with our home-grown corms that in no single instance were the bought roots larger, but, on the contrary, some of ours were three times larger. Fourteen of the purchased corms did not grow, and in every case where they have grown the home plants are stronger.

What I consider the main points to be acted on in order to secure healthy growth are these: Not to plant too early; to have rich well-prepared soil; and, in seasons like those we have experienced of late years, to lift all plants which have not finished growth, and allow them to do so under glass. To explain these points more in detail, I find that nothing is gained in earliness by planting at an early date, when both soil and atmosphere are cold. Here planting is not performed till April, nor later than the middle of the month, though in more backward districts it might be done later than that time. I have always found that the warmer the soil was before planting the stronger and quicker has been the growth of the plant and the longer the spikes of bloom. Early varieties come in at their usual time, and late varieties do not hasten, so that practically there is nothing gained by planting one batch earlier than another. Last year, from corms planted on the same day, we had blooms from the middle of July until the stock was lifted in the middle of October, and from some of these lifted plants we furnished vases with spikes until late in November. But in order that the most may be made of the genial weather from the beginning, a rich soil is an equal necessity. Our ground is trenched two spades in depth, the loose soil is shovelled out, and the bottom of the trench forked-up, manure being worked in at the same time and as the work goes on. The manure we use is half from the cow houses, with the remainder old hotbed manure. Watering has

not been required as part of their routine cultivation for some years until last season, when the beds had one good soaking to carry them through the flowering season and to render the eorms plump.

The third point I have noted as essential is lifting the late plants in order to finish growth under glass. Those who have only a small stock may lift each plant and pot it. This can be performed at the bed as the plants are lifted, the ordinary soil of the bed being good enough for this purpose. Place the plants in an airy house and keep them watered until the foliage has ripened. Our plan now is to lift and carry at once to the border of a late Peach house, where they stand with good balls of soil attached until ripened. In a year like the present where the bloom is late—at least thus far north it is—our whole stock will be lifted and ripened under glass. I think such a beautiful plant as the *Gladiolus* is quite worth all the trouble.

In planting we draw a deep drill with a hoe, place some coarse sand under and over the eorms, label as planting goes on, and level the soil. In our case 5 inches is about the average depth we plant the eorms. When I had only a few dozen eorms they were planted in clumps in the flower borders, a hole being made and a couple of shovelfuls of a rich prepared compost placed in and mixed with the soil of the border. Five or six eorms were planted in one clump.

The routine summer work consists in hoeing the beds once a fortnight, and when the spikes appear they need support. I have discontinued giving each plant a stake, but insert stout stakes at equal distances in each row; run a strong string along, twisting it round each stake, and to this string the spikes are tied. The stakes need not be more than from 2 to 2½ feet out of the ground. This plan succeeds admirably in our windy garden. I consider it a great improvement, as the flowers can be seen without a lot of sticks appearing at the same time. When a few spikes are wanted for exhibiting it is necessary to shade them from the time the first flower opens. A newspaper supported by three sticks answers the purpose well. If the weather is very hot and the under flowers in any of the spikes likely to wither, cut these spikes and place them in a bottle of water in a cool room or cellar. In dull weather again a spike may be forwarded by placing it in a cool stove. Remove all spikes that have flowered. When the eorms are lifted I always allow the soil to remain attached to the roots, and allow all green leaves to turn yellow before removing them. The soil need not be removed from the eorms till spring, as it serves to protect the small eorms, which cluster in numbers round the base of the large one. I have never made much of these small eorms. When planted in the open garden large numbers never grow, and when placed in pots they have often failed because sufficient attention could not be given them. However, they are worth looking after as a means of increasing stock. I think of setting a frame apart for these, allowing them to remain until they have finished their growth. If especially fine spikes are required try a little guano or potassic nitrate strewn on the surface of the bed just as the spikes are showing.—R. P. BROTHERSTON.

AMERICAN BLACKBERRIES.

To all who care for preserved Blackberries, either in the form of jelly or jam, I would say, Plant the American varieties. A single row across a quarter of the kitchen garden has afforded bushels of fruit this year, from four to five gallons being picked each time that successive batches have become ripe enough for gathering. A rude fence of poles was made 6 feet high, and the long unpruned growth tied upon it soon grew into one of the most ornamental hedges conceivable.—EDWARD LUCKHURST.

I HAVE forwarded a few bunches of the Parsley-leaved Bramble. Two years ago I had some planted against a rough wall, which is now covered, and the plants loaded with fruit similar to those sent you; they look ornamental, and the fruit is fine for either tarts or jam. We have not had two fine days consecutively for several weeks, so that the flavour is not nearly so good as usual; they were very wet when gathered this morning.—JAMES CARTER, *Keighley*.

[The specimens sent indicate the great productiveness of this Blackberry, and for covering fences and forming arches over walks it is admirably adapted. As thus grown it is highly ornamental, and the fruit is useful.—ED.]

CASSIA CORYMBOSA.—As an autumn-flowering plant I find this very useful, the abundant bright yellow flowers being pleasing at this season. Any plants that have still a number of flowers to

open will do so more freely if placed in a light position in a house a few degrees warmer than an ordinary greenhouse, and thus a prolonged supply of flowers will be obtained. Plants that have flowered should at once be cut back, and may be placed at the warmest part of the greenhouse, where they will soon commence growth, and will continue growing slowly through the winter. If not cut back closely after flowering it soon becomes straggling in growth.—A. G. A.

CHRYSOCOMA LINOSYRIS.

GOLDILOCKS is probably known to many of our readers as a really valuable border plant for autumn flowering, but there are still some who have yet to make its acquaintance. To these the figure will convey an idea of the close-branching habit distinguishing the plant, the small linear pointed leaves, and tuft-like flower-heads; but the chief attraction of Goldilocks is, as is quaintly indicated in the popular name, the bright yellow colour of the



Fig. 50.—*Chrysocoma Linosyris*.

very abundant blooms. In Mr. Parker's nursery a week since it was most attractive, long lines forming compact hedges so densely covered with the flowerheads that scarcely any foliage was visible. At a short distance these had a remarkable effect, even on a dull showery day, and when the sun is shining they contrast grandly with the similar lines of Dahlias, Asters, and other plants which render the Tooting Nursery so attractive and interesting at this time of year.

SELECT VARIETIES OF FRUIT.

THE following fruits are recommended after a somewhat lengthened experience with them. Doubtless many are omitted which are as good as some of those named, but I have endeavoured to give a succession in each class which I believe may be fairly depended on.

Dessert Apples.—Margaret, Juneating, Irish Peach, Devonshire Quarrenden, Kerry Pippin, King of the Pippins, Cox's Orange Pippin, and Dutch Mignonne. **Kitchen Apples.**—Keswick Codlin, Golden Noble, Waltham Abbey Seedling (this requires no sugar), Blenheim Pippin (also a good dessert Apple), Dumelow's Seedling, and Northern Greening.

Pears for Standards, Walls, Pyramids, or Bushes.—Doyen d'

d'Eté, Jargonelle, Williams' Bon Chrétien, Beurré d'Amanlis, Fondante d'Automne, Beurré Hardy, Comte de Lamy, Louise Bonne of Jersey, Marie Louise, and Josephine de Malines. The following varieties will require a wall in most parts of the country and are worth it—Beurré Superfin, Doyenné du Comice, Thompson's, Van Mons Leon Leclerc, Glou Moigseau, Bergamotte Esperen, Easter Beurré, and Ne Plus Meuris. Marie Louise is also generally improved by being grown against a wall.

Plums for Walls and Standards.—*For Walls*—Early Rivers, Jefferson, Washington, Green Gage, Kirke's, White Magnum Bonum, Golden Drop, and Ickworth Impératrice. *For Standards*—Early Rivers, Washington, Victoria, and Winesour for every use to which the Damson is applied.

Peaches.—Early Louise, Hale's Early, Grosse Mignonne, Bellegarde, Barrington, and Walburton Admirable.

Nectarines.—Lord Napier, Violette Hâtive, and Rivers' Orange. Order early, and plant if possible not later than the last week in November.—WM. TAYLOR.

TUBEROUS BEGONIAS.

PROBABLY in no class of plants grown indoors or out has the same improvement been made within the last few years as has been effected with Tuberos Begonias. When they first reached this locality they were then generally grown in heat, and in a few instances in the stove. They were next found to do well in the greenhouse, and ultimately to make most accommodating bedding plants, growing fairly well on hillside or valley, partially shaded, in rich loam, loam and peat, light soil, and even in poor soil. I have seen them under all those circumstances and grown them under some of them, and am therefore justified in not only describing them as accommodating, but the leading flowers of the future. These reflections were partially suggested by seeing some very superior specimens, distinct advances on anything that had hitherto come under my notice, in the collection at W. A. Riall's, Esq., Amer Ville House, near Clonmel. Much depends on having a good strain, and then judgment in hybridising and raising seedlings and growing them freely. Where there are thousands of seedlings raised it is not necessary to name them for bedding purposes: naming them here has been given up. Messrs. Sutton and Sons announced this long since; and I believe Messrs. Laing, Forest Hill, and H. Cannell, Swanley, only name very distinct seedlings. Begonias are the only speciality at Mr. Riall's, and though the houses are crowded there are numbers of seedlings planted out in beds. Many are now blooming without any special care, and are undoubtedly of superior merit. Hundreds have not yet bloomed, but those I noticed were chiefly single. They varied principally from pure white to yellow, rose, crimson, and bright orange, with all the delicate shaded tints between these.

Although the beauty of many was on the wane, at the time of my visit enough remained to show the superiority of the strain and the culture adopted. The size of the flowers exceeded my expectations, and the shape even more so. Except the older drooping kinds the vast majority were round, and many fully 5 inches in diameter. Other peculiar features were serrated or fringed edges to the petals, principally on those fine robust specimens grown upright. And here I may remark that to my mind those with drooping and pendulous flowers were inferior and not so showy as those stout, firm, upright flowers. Another point, too, is that many of the flowers had five petals, making the circular disc more perfect; and this, too, should be perpetuated. Gardeners are as a rule unselfish, and Mr. Maher made no secret of how he grew such fine specimens. The chief facts are a compost of loam, leaf soil, and well-decayed manure; storing the plants in a temperature not much under 50° in winter, allowing them to start naturally, repotting and slight forcing to give them a start in early spring, shifting them into larger-sized pots for large specimens, and after a vigorous start into growth cool treatment throughout afterwards. One of the elements of success I must notice was the constant use of weak guano water during the season of growth.—W. J. M., *Clonmel*.

SCRAPS ABOUT FRUIT.

I THANK you for publishing my letter last week and receiving my suggestion so favourably. I am certain if cultivators would contribute notes on different varieties of fruits much valuable information would be gathered. Especially would I ask them to notice the failings of any sorts that have not answered their expectations. There are numbers of readers who may not have much to say, but if each would tell the little he knows the aggregate of fragments would amount to a great store of knowledge that ought not to be lost to the host of learners, new with every

year, who are thirsting for information. By a record of facts bearing on fruit-culture as much may be learned in a month as a cultivator could learn from his own experience in five years. In asking for the aid that others can give I make, I trust, no great nor unreasonable request, as I only ask for the atoms.—A COUNTRY SURGEON.

ALTHOUGH I cannot resist "A COUNTRY SURGEON'S" request to send a few "simple items," I fear that what I send will be too "simple" for publication; they are mere jottings of passing experience. The best culinary Apple I find for this season of the year is Ecklinville Seedling. It is of large size, excellent quality, and is a very free bearer even on the Crab stock, which I find is the best stock for it, and on which it seldom fails to have a heavy crop.

ALBERT VICTOR NECTARINE.—This is one of the finest Nectarines grown. The fruit is very large and the quality excellent, but I find the flavour is better after the fruit has been gathered a few days. I think it may be called the best moderately late Nectarine.

THREE GOOD PEARS.—Amateurs with not much wall room at disposal will find the following three Pears all that can be desired for giving a supply, early and late, of superior quality:—Beurré Superfin, Marie Louise, and Josephine de Malines. The first and last do best on the Quince stock, Marie Louise on the Pear. They are best trained to a south wall, and are worthy of it.

SOME people say, "Plant fruit trees in this generation to benefit the next;" but if you plant good trees of Apples on the Paradise, and Pears on the Quince, you may gather fruit two years after planting.

WORMSLEY PIPPIN APPLE.—Although this Apple is not very largely grown it should be included in all collections on account of its good quality, very free bearing, and good keeping properties. It would be a capital market sort.

BLLENHEIM AND RIBSTON PIPPINS.—Are these planted as largely as formerly? I think not; but are there two better Apples grown considering all their good qualities? It is only in old orchards that good established trees are found, and young ones are not extensively planted—in some orchards not at all. What shall we do when the old trees are worn out? But I suspect we shall then feel the force of the old saying, "We never miss our friends till they are gone."—THE DOCTOR'S FRIEND, *Worcestershire*.

THE DOMINO APPLE.—I see that seraps on fruit are invited; I therefore send one, and may perhaps send others. Although this Apple is grown in the midland counties and much valued there, in Nottinghamshire especially, it does not appear to be generally known, or at least it is absent from many collections in the south. It is considered by those who grow it well to be an improvement on the Keswick Codlin, to which it bears some resemblance, yet it is quite distinct from that old favourite by its darker green fruit, and the tree also appears to be of less pendulous habit. Domino is a heavy bearer, the branches being often wreathed with fruit like ropes of Onions. It is fully as early as the Keswick, and the fruit is not blown off the trees so readily as that of Lord Suffield. Can anyone give the origin of the Domino Apple? and will those who have grown it state their opinions on its merits? I have not grown it, but have seen it frequently and heard it praised.—A TRAVELLER.

THE DYMOND PEACH.—"A COUNTRY SURGEON" wishes for information on fruits. So do I. A gentleman visiting me in September said, on noticing a barren Peach tree, "You should grow the Dymond, it is so hardy." I asked no particulars respecting it, presuming I should find it in the catalogues; but it is not included in any of those before me, neither is it described in my edition of the "Fruit Manual." I wrote to my friend asking if he was correct about the name, or whether his Peach had any other names, also where he obtained the tree. His reply is as follows—"All I know about the Peach is that it grows well, bears regularly, and is good. I cannot say where the tree came from, as the gardener who planted it left me two years ago, and I do not know where he is now or I would write to him; but as you take in a gardening paper, which is more than I do, you ought, I should think, easily get the information you want." I now ask if there is such a Peach as this? if so, what is it like, and where a tree can be obtained? I shall be thankful for any particulars

that can be published on the, to me, invisible "Dymond" Peach.—A HAMPSHIRE CLERGYMAN.

FORMAN'S EXCELSIOR STRAWBERRY.—One can always depend upon what Mr. Henry Boothby says, but the statement in your last week's number that the fruit of this Strawberry is "9 to 11 inches in circumference" surprises me. May I ask how the measurement was taken, whether the fruit is deeply corrugated, and if the line of corrugation was followed to make up the measurement? I have just passed a tape round an ordinary wine bottle, and find that is only 10½ inches in circumference; and if this Strawberry is larger than the diameter of a wine bottle it must be a monster, and suggest more bites than are usually found in Cherries or Strawberries either.—B. L. S.

FRUIT TREES IN HEDGES.—Attention was recently called in the pages of a contemporary to planting fruit trees in hedges as a novel idea worthy of attention. The plan is a very old one in Sussex, especially as regards Damsons, Bullaces, Plums, Cherries, and Apples, all which answer well as standards in this position. This is probably owing chiefly to the local custom of planting hedges on broad raised banks formed of sods or soil thrown up on each hand, so as to make a ditch on each side of the hedge. This method affords the trees an unusual amount of good soil, and at the same time renders them safe from an accumulation of stagnant water. Certainly it has the merit of economy of space to recommend it, and excellent crops of fruit may often be seen upon the trees. I may add that I obtained my entire supply of Damsons from hedge trees this year.—EDWARD LUCKHURST.

WARNER'S KING APPLE.—What an appropriate name! It is, indeed, king of culinary Apples in its season, and its noble fruit surpasses all other in size. The trees, too, are admirably in keeping, with their large stems and sturdy branches, like Keswick Codlin always bearing an annual supply of fruit. This year the crop is not only unusually abundant, but is especially remarkable for the large size of the fruit. "Ah!" said I, when gathering some very fine Tower of Glamis, "King is beaten this year." But when we came to the King it was found that his majesty admirably holds his own.—A KENTISH GROWER.

BELLE DE SEPTEMBRE AND THE CZAR PLUMS.—If the following remarks are of any value to your readers I send them for what they are worth. I planted a small orchard two years ago of standard trees, and among them are a row of The Czar Plum and one of Belle de Septembre. While there has been more or less fruit on all the other varieties, the two I have mentioned have borne such abundant crops that I have been obliged to support the trees. In one instance where my man neglected to do this effectually a tree of The Czar was so heavily laden that one morning I found the stem snapped in the middle. Belle de Septembre bears out its name, for during the whole of last month it has been like a burning bush all aglow.—H. HEYWOOD.

JERSEY GRATIOLI PEAR.—In reply to "A KENTISH CURATE," who inquires as to the origin of this Pear, permit me to inform him and the readers of the Journal that the peculiar alliance of "home and foreign" in its composition arose from a desire to correct erroneous nomenclature. When this Pear was first imported from Jersey to the Horticultural Society it was received under the name of "Gratioli" only; but as this is the name by which the Italians designate the Summer Bon Chrétien, the Chiswick authorities of that day added the specific distinction of Jersey to prevent the confusion which was inevitable between the two fruits if Gratioli had stood alone.—E. J., Wells, Somerset.

COX'S POMONA APPLE.—I suspect I am very much like the gardener whom a "A COUNTRY SURGEON" has immortalised in your pages as "THEY-ALL-KNOW-THAT." I have lived too long under the veil of "they all know that," and conscience tells me that there are many things that other people may think worth knowing which I selfishly keep to myself. I feel "A COUNTRY SURGEON'S" reproof, and I hope will profit by it; and not I only, but many who are Journal readers. I would like everybody to know what a splendid Apple Cox's Pomona is. I have five trees, which are perfect pictures as I look at them from the window of the room where I am writing. They are about twelve years old, and form handsome umbrella-shaped trees of about 8 feet high, and each tree carries over a bushel of the gorgeously painted fruit. I would advise everybody who is planting this season

not to forget a tree or two of Cox's Pomona.—W. BALCHIN Somerford.

I HAVE several young trees of Cox's Pomona, and am increasing the number. I would not, however, advise its being grown in a small collection in the north. It is a sort which will pay for pinching in early August as a means of increasing its fruitfulness. R. P. B.

BARONNE DE MELLO PEAR.—In response to "COUNTRY SURGEON'S" suggestion in your last week's issue of the Journal, allow me to draw your readers' attention to the merit of this most excellent Pear, which, as far as my observation goes, is but seldom met with. It is one of the most valuable dessert Pears I know of, with a most distinct appearance, being of a light russety brown colour, flesh quite white, flavour of the first order, with a pleasant aroma. It must be grown against a wall. With us it is trained in upright cordons. It never fails to produce a heavy crop, and in favourable seasons the fruit requires thinning severely.—DRUID, Staffordshire.

STIRLING CASTLE APPLE.—I have planted Stirling Castle Apple largely, and have budded twenty more stocks with it this autumn. I find it one of the freest bearers, though the fruit does not grow to a large size here. The trees grow very slowly. It is in use here up to the middle and the end of December. Lord Suffield continues into October with us, and is followed by Keswick Codlin and Ecklinville Seedling, all three of which are worthy of growing alongside Stirling Castle, and following them is Manks Codlin—another never-failing sort. The estimate of Stirling Castle as given at page 261 is very near the mark, but I do not know whether this variety or Manks Codlin is "the finest and most useful late autumn and early winter kitchen Apple in cultivation."—R. P. B., East Lothian.

OLD GOLDEN PIPPIN.—An orchard tree of this pretty little Apple is bearing abundantly with me this season. For the last two years it has fruited very sparingly, which no doubt has contributed to increasing vigour, as, although an old tree, its foliage is as green and healthy as any in the garden. It is about 15 feet in height, and about five bushels of fruit have just been gathered from it. I never noticed before what may perhaps be termed a monstrosity, a few twin-fruited specimens—that is, two Apples joined together with only one stalk, but two eyes, or calyces, and two ovaries. This variety is said to be excellent for Apple jam, a preserve much relished by some people.

SIBERIAN CRABS.—This is evidently a year for these. They are good for planting in mixed shrubberies or for single specimens on lawns, and when in bloom will vie with the Apple or Pear for beauty. There is a double-blossomed variety that blooms the end of May or first half of June (according to season), very similar in colour to the majority of Apple blossom, but being double it travels well, and is useful as an auxiliary in cut-flower furnishing. It has a good crop of fruit this year as well, but small—not much larger than Hawthorn berries. The scarlet Cherry-fruited kind (*Pyrus cerasifera*) is very ornamental, and is highly prized by some as a preserve. But the most ornamental to my knowledge of all, in my estimation, is a yellow-fruited kind, sent on Saturday with Golden Pippin, with long stalks, hanging on the tree in bunches, and singly. The fruit is as large as the Golden Pippin, but of a very bright yellow. This variety, I think, is not very common, and I should like to know the name of it. I find from an old work a variety mentioned as Knight's Yellow, would it be that?—A. HARDING, Northamptonshire.

[The Apple is the Twin or Cluster Golden Pippin, and not the true old Golden Pippin. The Crab is the large yellow-fruited Siberian, and is highly ornamental.—ED.]

ADVICE TO YOUNG GARDENERS.

WILL you kindly grant a small space in your valuable Journal that I may offer my thanks to Mr. Pettigrew for his much-valued advice to young gardeners? I am a young gardener, and trust you will print this, my first attempt at writing, to show Mr. Pettigrew our appreciation of his efforts to help and guide us upon our way through life. We young gardeners require an occasional reminder of our failings, and a few words encouraging us to perform our duties faithfully. Such advice as that of Mr. Pettigrew's is both wholesome and stimulating; it stirs us up to renewed efforts, and makes us more determined than ever to continue and not weary in well-doing. We hope some more suc-

cessful veterans in life will see their way to place their experience before the readers of this Journal, that young gardeners may be profited by it, and that they themselves may have the satisfaction of knowing that they have contributed something to the advancement of the rising generation.—R. M.

SENECIO PULCHER.

THE woodcut (fig. 51) represents a flowerhead and portion of a leaf of the attractive Groundsel, *Senecio pulcher*, from a plant in Mr. Parker's nursery at Tooting, where this, among many other handsome plants, receives special attention. The care bestowed upon it seems to be well repaid, for though the habit is not quite so compact as might be desirable, the flowerheads are of unusual



Fig. 51.—*Senecio pulcher*.

size and remarkably bright in colour. As regards the designation of the particular tint some varying opinions are expressed, but light magenta seems to express it as nearly as possible. It is a most pleasing shade, and when the other flowers are judiciously and tastefully selected blooms of this *Senecio* may be employed to excellent advantage in many floral arrangements.

The great desideratum, too, in border plants—hardiness, is provided in the one under consideration, and a border can be made really attractive late in summer and early in autumn by freely planting the best forms of Michaelmas Daisies, *Anemone japonica*, and this *Senecio* in clumps.

One other mode of culture—namely, in pots, well deserves the attention of gardeners; for though the plants are rather too tall for the side shelves of greenhouses or conservatories, they are well suited for the central beds, where they produce an excellent effect.

WINTER-FLOWERING BEGONIAS.—Where collections of these useful plants are grown they will repay the cultivator for the attention they require. The plants should now be exposed to all

the light possible to induce them to flower strongly. Those that have filled the pots with roots now require liquid manure, and in a cool stove they will afford more enduring flowers for cutting than those flowered in a warmer and closer atmosphere.—W.

APPLES AND PEARS.

As the planting season will soon arrive I will give a few hints to those who have not had much experience with hardy fruit trees. I shall only describe those varieties that I have found succeed best either as standard, pyramid, espalier, cordon, or wall trees.

APPLES.—To succeed, Apple trees require a good deep loam, but with extra attention they can be grown well in almost any soil. If the ground be poor top-dress with some rich farmyard manure, and if procurable add some good loam when digging. Some gardeners will not dig the soil nearer than 6 or 7 feet from the tree, but I find that where the soil is well loosened the trees produce the finest fruit. Apples, however, much dislike badly drained ground. The difference may be seen in many orchards this season; those on high well-drained soil being far the best, whilst those on low wet ground are denuded of fruit and foliage. Some recommend drainage to be placed under each tree, but except for Peaches or Nectarines I do not see the advantage of this. If the garden is wet it should be drained. The ground ought to be prepared for the trees by deep trenching. No manure will be required unless the soil is very hungry, as that applied by top-dressing is the best. I have some good turfy loam ready to place round the roots, as they spread into that very freely. Procure the trees from a nurseryman who makes a speciality of fruit trees, and then no disappointment will be caused by incorrect naming. Order early, and have the trees as clean as possible.

As regards the best stocks for Apples, I find for orchards it is best to have them grafted on the Crab, either standards or pyramids, and in gardens also where there is room, as the trees last longer in bearing, but do not commence bearing so soon as those grafted on the Paradise. Apples on the latter stock should be planted between the permanent trees, when they will commence bearing the second year after planting. For small gardens the Paradise stock is best suited. Two years after planting the trees on the Crab take them up and replant them, as this will be of great benefit, inducing them to bear much sooner than if left undisturbed.

Planting may be commenced early in November. Be careful not to plant too deeply. Pyramids or bushes may have the soil up to the graft; for standards 2 inches depth of soil above the top roots is sufficient. Cut off all bruised roots, place some of the turfy loam at the bottom, sprinkle some fine soil about the roots, well shake it in, but do not tread it; place some of the roughest on that, and fill up with the ordinary soil. Place some short litter round each tree to protect the roots from frost and drought. Standard trees will require a good stake to prevent them being injured by wind. Some gardeners do not prune at all the first season, but I find it is best to do so early in March.

Culinary Apples.—The following are some of the best varieties for succession:—Lord Suffield, fruit very large, abundant bearer and of good quality; succeeds well on the Crab. Ecklinville Seedling, a sure and prolific bearer, fruit of good quality; it is best grown as a pyramid, as the fruit is liable to be blown off standard trees. Emperor Alexander, fruit very large and handsome either on the Paradise or Crab stocks. Cellini, large and handsome, tree a prolific bearer; succeeds admirably as a pyramid. Stirling Castle, a splendid fruit, and tree a great bearer. Gloria Mundi or Belle Dubois, fruit large on the Paradise stock. Warner's King, fruit very large; it is a prolific pyramid or orchard tree on the Crab or Paradise stock. Gravenstein, good for kitchen or dessert; espalier. Mère de Ménage, fruit large and handsome; makes a good orchard tree. Cox's Pomona, fruit very handsome and prolific; a fine orchard tree. Beauty of Kent, well suited for orchards. Blenheim Orange, too well known to need description. Dumelow's Seedling, a prolific bearer, fruit of good quality; a useful late orchard tree. Bedfordshire Foundling, large; good orchard tree. Alfriston, very large on the Paradise, and prolific.

Dessert Apples.—These may be grown as espaliers, pyramids, and horizontal cordons. They all succeed best on the Paradise stock, although pyramids may be grown on the Crab, but the fruit on the Paradise is much finer and of better colour. The following I have found a good selection to give a succession:—Irish Peach, medium size; fruit of good flavour. Kerry Pippin, fruit small but of excellent flavour. Cox's Orange Pippin, very prolific; considered by some the best Apple in cultivation. Ribston Pippin, well known. King of the Pippins, fruit handsome; a prolific orchard tree. Ashmead's Kernel, good flavour. Brownlee's Russet; Scarlet Nonpareil, fine late Apple. Duke of Devon-

shire, prolific; late. Northern Spy, fruit of pleasant flavour; succeeds best on the Paradise stock. Adams' Pearmain, fruit of good flavour and handsome. Sturmer Pippin, a useful late Apple; a prolific bearer. Court-Pendu-Plat, a late but sure bearer; it makes a fine pyramid. Melon Apple, splendid flavour; succeeds best trained to a wall. The notes on Pears must form another chapter.—FRUIT-GROWER.



MR. T. LAXTON writes to us as follows on a WHITE BEAUTY OF HEBRON POTATO—"This variety, like others of the coloured American sorts, seems prone to give off white tubers—the origin, doubtless, of some others of the transatlantic varieties which have reached us recently. The freak has occurred with Beauty of Hebron both in the Experimental Garden and also in the hands of a neighbour. In all other respects except colour White Beauty of Hebron seems a parallel of its parent, and must be a decided acquisition, as the great objection hitherto to the old variety and to others of the 'Rose' type is the colour, which depreciates their value for market purposes."

— A KENTISH gardener states that he recently observed in Maidstone Cemetery a LARGE BED OF TUBEROUS BEGONIAS. The bed contained about three hundred plants in fine condition, the flowers being of various shades of colour, all the plants flowering profusely, proving their usefulness for bedding-out, especially in the southern counties.

— "SCIENTIA" writes, "Amongst a number of varieties of CEANOTHUS planted out in a bed at Chiswick, one named GLOIRE DE VAITE (Lemoine, 1879), was most conspicuous. It is a good grower and profuse flowerer, having large trusses of a light blue colour. It is admirably adapted for walls or planting in beds as practised at Chiswick. A large bed filled with this variety would be very striking at this season of the year."

— A NORTHERN correspondent says, "POLYGONUM BRUNONIS is one of the prettiest plants flowering at the present time. It is well suited for the rockery, being very showy with its spike of pink or rose-coloured flowers, which rise about 9 inches high. It is a plant that should have a position on all rockeries, as they are comparatively dull at this season."

— "LANCASTRIAN" finds VERONICA LONGIFOLIA SUBSESSILE one of the best of the genus, deserving a place amongst the most select herbaceous plants. It produces a bold well-filled spike of blue flowers about 2 feet in length during August and September.

— "L. D. W." observes "that the OLD WHITE MULE PINK is not only valuable for the borders but for growing in pots. Gardeners and amateurs would find it useful, and it is surprising it is not more generally employed for indoor decorative purposes."

— "W. B." considers "that EUPATORIUM AGERATOIDES is a grand hardy plant too seldom seen in collections. It grows from 3 to 4 feet high, and is suitable for the back row of a border or for planting amongst shrubs. It is doubly welcome, as it is flowering profusely now, and a few plants when well established would afford abundance of flowers for cutting."

— LET me caution your readers against a kind of Beet which I was tempted to try from the favourable report I received of it. It is called by the French BETTERAVE CRAPAUDINE, and has recently been introduced to this country. I have a long row of it, and its foliage and roots stand quite 2 feet out of the ground.

Were it not for the colour it would pass for a coarse growth of Mangold Wurtzel. Instead of the small delicate top which characterises a fine stock of Beet, this has six or seven tops all larger than a single one ought to be. The root is large and coarse, and has as many prongs as tops. Such is my experience of Betterave crapaudine.—J. JACKSON.

— ONE of the finest STANDARD ROSES I have ever seen is one in the garden of Henry Webb, Esq., Redstone Manor House, Redhill. Its stem is 3 inches in diameter, and its branches, some of which droop to the ground while others grow upwards from a thicket of luxuriant growth, 7 to 8 feet high. The tree when in bloom is a mass of colour interspersed with a plentiful accompaniment of greenery. What is the cause of this extraordinary growth? Is it the variety which thus affects the stock? or is the stock some particular form of the wild Rose, which expands its growth more freely than the Dog Rose usually does? This is a subject I should like much to have discussed, as it is an important one to all rosarians.—H.

— THE DAHLIA GROUND AT SWANLEY has lately been the most striking feature, the plants being grown by the acre and include all sections—Show, Fancy, Bouquet, and single, the most approved varieties of each being represented. The blooms of the larger kinds are very fine, and of the smaller most profuse. The richest of the singles is Paragon, except, perhaps, some seedlings, among which are several new colours. The old single white variety Alba is strikingly attractive, and should be grown in every garden. Whether there are more distinct single white Dahlias is perhaps a moot question, but none at present, it may safely be said, surpasses the one in question. The dwarf single scarlet and dwarf single yellows are brilliant by their numerous flowers, but for richness of effect all—both singles and doubles—are eclipsed by half a dozen plants of an unnamed variety that for decorative purposes will probably find its way into all gardens and pleasure grounds where Dahlias are grown. The flowers are small, double, but not formal and symmetrical, brilliant scarlet, and produced so freely that each plant is like a bouquet. Such a rich glow of colour is seldom seen as these plants afford, and Mr. Cannell must give the variety a good name and propagate it largely.

— THE appearance of the masses of flowers in the Pansy ground in the same establishment shows that as a TRIO OF BEDDING VIOLAS the following are not surpassed for continuity of flowering—Blue Bell, Yellow Boy, and Vestal, the last-named being white. Some newer varieties may possibly excel them, but not yet grown in sufficient quantity to judge of their effect in the same manner as those named, which should be obtained by those who do not possess them, and propagated by those who do for lines and masses, the present being the best time for inserting slips and cuttings. They strike readily under handlights, or in gritty soil in an open border, inserting them deeply. The old Magpie Pansy is flowering freely now; it is a quaint and distinct variety, the flowers being admirably adapted for vase decoration.

— OF CHRYSANTHEMUMS there will be a great display shortly, a plant of each of the 149 varieties being grown for testing the truthfulness of the stock. Young plants of these are grown in small pots, the stock of each variety being plunged in separate beds, having 2 or 3 feet of space between them, with the object of keeping them distinct and reducing mistakes to a minimum. The beds are arranged in the order of the catalogue, and the great extent of space the plants occupy afford practical testimony of the popularity of this fine autumn flower.

— MANY other things are noteworthy in the nursery, both under glass and out of doors, but only the PRIMULAS can be referred to. These include all the strains in cultivation, and so numerous are the plants that they occupy a length of 800 feet

of staging 4 feet wide. They are in the best of health, and are just commencing to flower. Eventually the display will be remarkable both by its extent and the great variety of colours that must necessarily be represented.

— THE following GARDENING APPOINTMENTS have been recently made:—Mr. Wm. Cruickshank, late gardener to R. E. Warburton, Esq., Arley Hall, Northwich, has been appointed gardener to the Hon. Jas. Saumarez, Saumarez Park, Guernsey; Mr. Jas. Fletcher, late foreman at Frogmore, succeeds Mr. Cavanagh as gardener to J. E. Taylor, Esq., Coppins, Iver; and Mr. Alfred Waters, late foreman at Norris Green, Liverpool, succeeds Mr. McKellar as gardener to C. Magniac, Esq., M.P., Colworth Hall, Sharnbrook, Beds.

— WE agree with the *Journal of Forestry* that the GENERAL CULTIVATION OF FRUIT TREES has never been practised by the rural population in this country with the same intelligence and industry which we see so common in fruit-growing countries on the continent, where neither soil nor climate are in any way superior to our own. Throughout most of central Europe fruit trees are planted by the farmers and cottagers with judicious care and discrimination in their fields and gardens. In an ordinary season they gather abundance of luscious fruit—not only enough to supply their domestic wants, but also to send large quantities to market, from which they realise an acceptable addition to their income. This is all done without losing a square yard of ground that could be profitably devoted to any other food crop. The trees are planted along roadsides, on the margins of the fields, in the hedgerows, and in other odd places and corners, where they occupy ground that cannot be conveniently or profitably cultivated.

— “P. T.” writes, “PYRETHRUM ULIGINOSUM is a telling object in the flower garden at this season. Perhaps it is better suited for the shrubbery, as its tall and rather coarse habit is more adapted for such a position. The flowers are large, very showy, and of pure whiteness. It is what some people would call an ‘effective’ plant.”

— THE Jamaica Government are offering great advantages to those who are inclined to embark in the CULTIVATION OF CINCHONA. Suitable land is offered at a very low rate, and it seems to us that, with proper methods and selection of the right kind of plants, there is room in Jamaica for a limited number of plantations of this kind. In connection with this, Mr. D. Morris has issued a valuable series of “Hints and Suggestions for Raising Cinchona Plants from Seeds, and Establishing Cinchona Plantations.”—(*Nature*.)

— A RECENT visitor to SANDLEA HOUSE, DATCHET, observes that “There are few small gardens more charmingly situated, as it is close to historic Windsor, a portion of the home park with its magnificent trees facing it, and the Thames running by the side of the well-kept and tastefully laid-out pleasure grounds. It is in the possession of Mrs. Fowler, and was laid out some years since by Mr. George Eyles. The gardens and houses are kept in admirable condition under the superintendence of Mr. Thomas Fraser, the head gardener, who has been for some years in his present position with credit to himself and his employer.” The same correspondent remarks that “Carpet bedding on the WINDSOR CASTLE SLOPES is very beautiful, and well worth the attention even of those who decry this system of gardening.”

— FROM every part of the country we hear of the abundance of the CROP OF WILD FRUITS. Crab Apples appear to be a heavier crop than has been seen for many years, and Sloes are fully as abundant. The Mountain Ash is loaded with “Rowans,” and the thrifty housewife is rejoicing at the prospect of the dozens of wine she can make from the abundant supply of Elder berries. The Yew is thickly sprinkled with its juicy scarlet berries, on

which thrushes and blackbirds, besides smaller fry, are enjoying a rare feast. When these fail them Haws and Holly berries, which are enormous crops, will keep up the supply of food for the woodland songsters till the return of spring. The store of such food has not been so large for a good many years, but we hope that the abundance of these wild fruits does not presage the approach of another severe winter, in accordance with the popular belief.—(*Journal of Forestry*.)

— SPECIAL articles on popular subjects that appear from time to time in the daily papers usually bear the impress of ability on the part of the contributors and sound judgment on the part of the editors; but we are unable to congratulate either the editor of the *Standard* or his contributor on an article on TREES NEAR TOWNS that found its way into print on the 28th ult. That the writer has little knowledge of the subject on which he was permitted to instruct others is apparent and perhaps excusable; but he might have taken the trouble to have referred to some books before preparing his wordy yet empty and inaccurate lecture. He refers to Araucarias as “Monkey-puzzlers,” but we have not to read far before finding that there are man-puzzling trees as well. He falls very foul of the Plane tree, because, like some others, it is not English “in any sense,” although it has been with us for more than three centuries; and if trees “of its class” must be had we are to plant Sycamores, “as they have in a measure become acclimatised.” In what “measure” a native tree has become acclimatised it would be interesting to know, but it is amusing to be told it is in the same “class” as the Plane. In his zeal for English and his contempt for exotic trees the specialist goes into ecstasies over the Horse Chestnut among others, in blissful ignorance that, like the Plane, it can hardly be English “in any sense,” seeing that it is an exotic of much more recent introduction than the Plane. In one place we are told if a young Oak springs up in a garden it is cut off at once, as “it would spoil the Laurels,” and in another place “the cold-blooded Laurels kill everything else.” We ought to have had Oaks, Elms, and Beeches on the Thames Embankment, then rooks would have come to the Oaks and woodpeckers to the Beeches, the “sound of one of these birds being worth ten thousand Laurels;” and if a Hawthorn is planted “almost every bird will come to it, from the wood pigeon down to the wren,” and “Ash attracts turtle doves,” and so on with similar nonsense. The Lime, it is stated, will run a race with any tree; but he forgets one, and an English tree, that will leave it far behind. But, seriously, our author does not appear to know that the trees he urges for towns have been tried and failed. Does he not know of thousands of Elms near London that are mutilated because of the liability of the tree to cast its limbs in storm and calm? This is a grand but dangerous tree, and people are warned not to go under the majestic specimens at Windsor. He seems to forget, too, that before the woodpecker comes to the Beeches they must be old and decayed; and before huge Oaks and Beeches are flourishing on the Thames Embankment the celebrated New Zealander will be pointing out the site once occupied by the great metropolis, and the weary pedestrian in the post-railway period will be resting his weary limbs under the Wayfaring Tree, which we learn for the first time is the Barberry! Our author then soars amongst the stars and plays with Sirius, Arcturus, and the Pleiades, and there we leave him to find his level; but in the meantime, if our important contemporary desires to maintain its reputation as a standard authority on the subjects on which it treats, its specialists must show that they have at least a fair amount of practical knowledge of those subjects on which they are encouraged to write. Perhaps, however, the article was only intended for a burlesque!

A SELECTION OF APPLES AND PEARS.—The following varieties, ripening or being fit for use in the order named, are suitable for

a small garden :— Of culinary Apples Carlisle Codlin, Cellini, Stirling Castle, Blenheim Pippin, Dumelow's Seedling, and Hanwell Souring ; and of dessert Apples Devonshire Quarrenden, King of the Pippins, Blenheim Orange, Cox's Orange Pippin, Margil, and Golden Reinette. Good and profitable Pears are Jargonelle, Williams' Bon Chrétien, Beurré Superfin. Louise Bonne of Jersey, Marie Louise, Pitmaston Duebess, Beurré Diel, Hacon's Incomparable, Beurré d'Aremberg, Glou Morceau, Bergamotte Esperen, and Beurré Rance. All of these, with the exception of Jargonelle and Glou Morceau, will succeed as pyramids or espaliers ; but all are improved by being trained to walls.— W. IGGULDEN, *Wiltshire*.

HONG KONG.

(Continued from page 270.)

THE true nature of the Chinaman is quite a mystery to the European. Probably when the latter fancies he knows the China-

man best he is still only acquainted with the outside of him. The true reason of this is no doubt due to the fact that the Chinaman has the religious, intellectual, and æsthetic part of his nature developed so slightly as not to afford a sufficient opportunity to the European of meeting him on some of the many common topics which neutralise the banefully narrowing and self-seeking effects of a spirit of unmitigated trading. Chinese religion is yet sunk in a superstition dark as that of the European middle ages. Chinese science, like a puppy, has hardly emerged from the period of its post-natal blindness. Chinese history of the world is the history of China, while Chinese art has not yet mastered the idea of perspective. The only common standing ground in the æsthetic province which the Chinese have with Europeans is in music (*sic*). Helmholtz has identified the Scotch musical scale with that of the Chinese ; but before I read this fact I was struck with the remarkable similarity of character in the airs played on the tibia : Chinese religious processions with those rendered on the bagpipes in Scotland. They are both high-pitched, harsh, imperfectly phrased, and set in the minor key. As a proof of this I may state

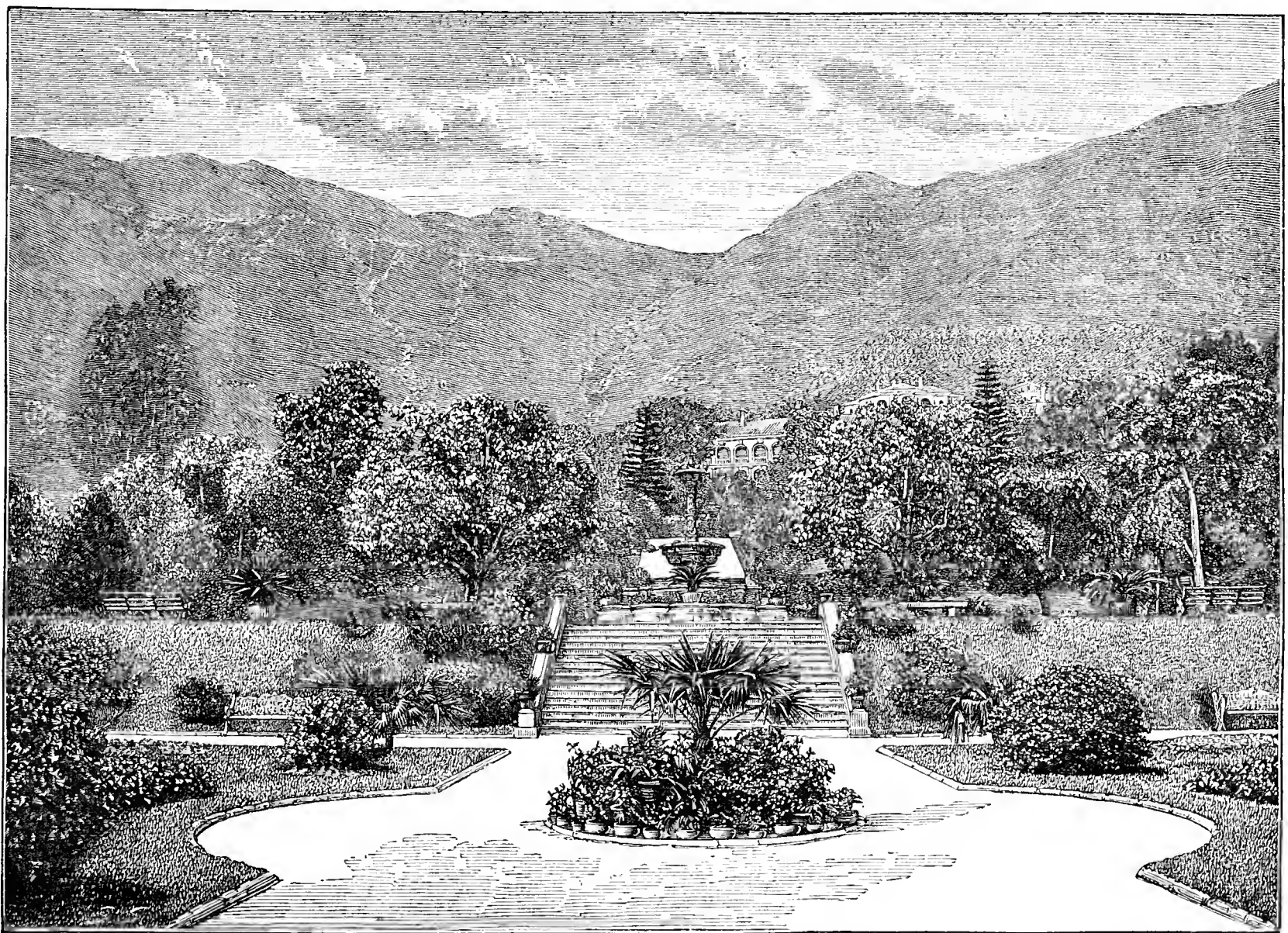


Fig. 52.—BROAD WALK IN THE GARDENS AT HONG KONG.

that while I was in Hong Kong a Scotchman in the place went about during several evenings "skirling" on his pipes, and the Chinese, who listen with the most perfect apathy to music on the piano and organ, were delighted beyond measure. The only subject on which the Chinaman brings all his faculties to bear, and in which he consequently succeeds, is trade and money-grubbing. He will resort to all sorts of devices, undergo any privations, submit to every kind of rebuff with what one might almost call an insolence of meekness, exhibit the most inexhaustible patience, and toil as unweariedly as a piece of mechanism to amass money. He undercuts everybody everywhere, whether as a coolie in the guano islands of Peru and the sugar plantations of Queensland, as a domestic servant and petty artisan in San Francisco, or as a wholesale or retail dealer in the Chinese treaty ports and the Straits. He is slowly but surely ousting the European merchants, as he now deals directly with the European manufactures instead

of, as formerly, invoking their assistance to procure the goods he requires ; and when he has obtained these at ordinary trade or wholesale prices, he can then retail them at a cheaper rate than a European tradesman, as his home is on the spot, and he has no desire to make a fortune speedily in order that he may be able to hurry away to a more congenial clime where he may end his days. There is a wonderful difference in appearance between the paunchy, oily, monkish-looking, well-to-do Chinese merchant or shop-keeper, and the poor, wiry, worn-looking chair coolie or working coolie. But they are alike in this particular, that they will do a job for a small sum rather than lose the chance of making money altogether ; and when they have the money they take care by very frugal living that it shall not be all consumed in self-indulgence and on thoughtless enjoyment of the present. In organising trade the Chinaman is unexcelled ; but unless something else is added unto this, unless he learns to open his mind

with the gradual extension of his operations, he will become a horrible incubus to other nations which in their desperation they will at all hazards throw off.

In a previous communication I made reference to the gardens of Hong Kong, and sent a view showing their attractiveness in connection with the surrounding scenery. As representing the diversified character of those gardens I now send a view of the Broad Walk, which with its terraces, trees, and magnificent background is extremely imposing, and shows that when Art and Nature are appropriately blended how satisfactory are the effects produced. These gardens are a credit to those who designed them, and they are a pleasant adjunct of the busy town. I enclose also an account of the botany of Hong Kong, which will form a future article.—A WANDERER.

(To be continued.)

CURRENTS.

FEW fruits are more useful or more generally cultivated than the Currant. It is scarcely possible to find a garden of any moderate size without a few Currant bushes. In many instances they are looked upon as capable of growing anywhere, and certainly they are so hardy and vigorous that it is difficult to prevent them producing fruit. We frequently see them planted under the spreading branches of trees, and, even in that position they produce fruit. In these days, however, most of us endeavour to produce large fine fruit, and to accomplish that end we must go the proper way to work. Currants flourish in a good rich loam, with plenty of room to allow a proper circulation of air about them and sun to ripen their fruit. Red Currants should not be pruned too hard. Some of my bushes suffered from excessive pruning two years in succession, and did not produce above half the quantity of fruit of others more tenderly cut. We gathered splendid Red Currants as late as the 21st September, the bushes having been protected by tiffany as soon as the fruit became red. Black Currant bushes grow very vigorously here, and annually throw up strong young shoots from the roots. In September we cut out all the old wood, and leave the young wood only for the next year. When I first requested my man to do this he looked astonished, and told me I should have no fruit the following year. He has, however, quite altered his opinion, and only last week I saw him very busy clearing out the old wood. My Currants never fail to produce a large crop of fine fruit. They have a dressing of leaf soil every spring.—W. G., *Elmdale, Surrey*.

NOTES ON ROSES.

A WORSE autumnal bloom I do not remember, and yet the past few fine days have brought from their hiding places dear friends in all their old fulness, freshness, and brightness. To-day, the last of September, I have gathered really grand blooms of Marie Baumann, Alfred Colomb, Ferdinand de Lesseps, Louis Doré, La France, &c., and, strange to say, the only really good and typical representative I have seen of H.P. Jules Finger. I have been sorely disappointed up to now with this Rose, but three blooms cut this morning from one maiden standard have quite satisfied me. Let me recommend as very good autumnals Olga Marix and Acidalie. Both are most useful as to colour, and most accommodating as to freedom of blooming. Ferdinand de Lesseps is usually bracketed with Exposition de Brie and Maurice Bernardin, but with me is more satisfactory in every respect than the two latter. It is one of the most useful dark Roses we have, and thrives well on the Manetti. Is Madame Hippolyte Jamain a H.P.? I may be unfortunate, but have never yet seen on my few plants of this variety a second bloom. How different is her Tea sister in this respect!

Writing of Teas, I find Madame Lambard and Innocente Pirola both excellent in quality and quantity of bloom at this season of the year. Madame Angele Jacquier I have not sufficiently tried to speak positively as to her merits apart from her prettiness and distinctness.

How many of your readers are able to induce Reine du Portugal to open? I can see in my mind's eye now the glorious treble of this Tea Rose as shown by Messrs. Robert Mack & Son at the Sutton Coldfield Rose Show this year. I forgot to ask this firm's representative whether the blooms were shown under glass or in the open. Certainly their box of eight trebles at this Show was the finest stand of Teas exhibited during the present season.

Going back to H.P.'s, will your correspondents give me their ideas as to Paul Jamain? With me it is another Charles Lefebvre; perhaps a trifle "rounder" in shape, but not sufficiently distinct for me to keep.

Duchess of Bedford is, I think, the best novelty since A. K.

Williams. It is a grand Rose, too, for pots when grown in cold frame. I am glad to find that sport of our old friend Madame C. Joigneaux keeps to its first character. I refer to William Warden. The colour is quite charming, and as it makes less wood than "Madame" so it gives many more flowers; at least, this I find to be the case at Yardley Wood.—J. A. W.

GRAPES AT THE EDINBURGH FRUIT SHOW.

YOUR reporter, in his account of the Edinburgh Show in September, states, in regard to an exhibit of Grapes sent by me, that "apart from being badly packed and considerably rubbed they were not in good condition." In this description your correspondent has not given you a faithful account of what he saw. It is not true that the fruit was not in good condition. In view of what has been written lately the fruit was sent as examples that had set in a low temperature, all particulars of which were given on the card attached, besides particulars that were furnished to the Secretary and those who set them up for me, fully explaining that though mostly well coloured they were not quite ripe, that not being considered essential, the object being to show that the berries had set and swelled well. Had the reporter understood his duty and wished to perform it in a fair and impartial manner he could have given his opinion on the merits of the case, and stated whether the berries were set imperfectly or otherwise, &c.; but he only indulges in vague insinuations as to the quality of the fruit, without having the courage to say what was amiss with it. I was too unwell at the time either to pack the Grapes myself or go with them, and they were packed and sent to the Secretary in the ordinary way. That they were rubbed in the bloom I am aware, but not in a way to interfere with the purpose of the exhibit, which I trusted was sufficiently understood by gardeners, although I was well aware at the time that I was sending them "into the camp of the Philistines."

I have not been able to write you on the subject till now; and just to show how far your reporter's estimate of the Grapes I sent to the Show is just and true, I beg herewith to send you samples of the several kinds from the same Vines, and I am content to let you pronounce a verdict upon them as to the way the berries have set and their condition generally. They are not our largest bunches, nor are they so fine as those sent to the Show, but they are fair examples of crops in more than 200 feet of vineries here. They are, of course, a little riper than those at Edinburgh, but not better coloured, and are not yet perhaps quite ripe in all cases as regards flavour. As to gardeners not being "impressed with the economy of the system," I have only to state that if the letters which I have received from both gentlemen and their gardeners desirous of adopting the said system through "having seen" our Grapes at the Show be any evidence of the impression produced, I would be well justified in saying your reporter had failed to catch the drift of opinion regarding them. I enclose privately an example of the communications I have had in the shape of a letter from a gentleman in Scotland who, although his Vines "have borne very good Grapes" hitherto, is induced to adopt my practice through "having seen my exhibit of Grapes grown in cool night temperatures," and asks for instructions how to proceed.

It is a curious commentary on the reporter's verdict that a man who already grows good Grapes should be induced to adopt another plan which, according to your reporter, produces Grapes that are "not in good condition." Another letter, from a Scotch gentleman at a certain castle (whose name I give you), states that he planted his Vines and treated them according to the advice of one of the Judges at the late Edinburgh Show, giving his Muscats a night temperature of 75° min. when in flower, with the result that he has never had a satisfactory crop, the fruit neither setting well nor finishing satisfactorily, while the foliage after the setting period has been always severely injured by red spider, adding that neither he nor his gardener can account for their failure unless it be the high temperature, as nothing else they can discover appears to be amiss with the Vines, which generally start well and do well till the high-temperature stage is reached. This passage describes so accurately the results of the excessively high temperature system that I am induced to reproduce it here.—J. SIMPSON, *Wortley, Sheffield*.

P.S.—In addition to what is stated above I may mention that two bunches of Alnwick Seedling were awarded the first prize for black Grapes at the Handsworth (Sheffield) Show a few days before the Edinburgh Exhibition, and they were from the same Vine.—J. S.

[As "examples of setting" the bunches sent are highly satisfactory; indeed they are quite full, and all the berries are good, some being very fine, especially those of Gros Guillaume and Alnwick

Seedling; and although the last-named Grape does not always set freely, the bunch before us is perfect in that respect. The long tapering bunch of Muscat is similarly full and has swelled every berry to the point; and the Black Hamburgh, Lady Downe's, and Alicante are also good and full bunches. The Grapes are far above the average as grown for home use, but all of them are not perfectly ripe; and as they were necessarily less ripe at Edinburgh it is not surprising that they were not criticised exclusively as "examples of setting," but their general appearance was taken into account. Our reporter may, of course, have "failed to catch the drift of opinion" respecting them; but we have to say that he is perfectly competent to judge Grapes, and is in the habit of sending produce to his employer's table at least equal to the examples now before us, admirably as the bunches are set, and good and regular as are the berries.—ED.]

LINSEED OIL v. PEAR SCALE.

ON opening the *Journal of Horticulture* this morning I was surprised to see an old letter of mine again appearing in print. The two upright Pear trees alluded to in my letter were not injured in the slightest degree by the painting of boiled linseed oil which my gardener gave them, but it was "all over" with the scale, and the trees were not infested with that pest again.

Three years ago an upright-trained Apple tree was painted with this oil: care, however, was taken not to touch the flower buds or the leading shoots of the year. This tree is now in good healthy fruit-bearing condition, and is quite free from scale. My gardener has also painted a Peach tree. The last year's growth and the spurs were not painted, and the result was most satisfactory. Care must be taken to obtain pure linseed oil, as much inferior oil is now sold under the name of boiled linseed oil.

I feel I am so much indebted to Mr. Wm. Taylor for his admirable communications to our Journal, that I shall be most willing to answer any further questions he may think proper to ask on this subject.—C. M.

[A letter will be published next week from a gardener of great experience, who has found linseed oil dangerous, and he does not advise its use as an insecticide. If in the meantime anyone applies the oil to fruit trees it is important that the above injunction be borne in mind, and the oil be obtained pure.—ED.]

PLANTING STRAWBERRIES ON LIGHT SOIL.

THE soil in the garden under my charge is one of the poorest anyone can have to deal with for Strawberry-growing, the surface in some parts being little more than sand about the depth of the spade, and overlying red sandstone rock. But though the soil is unsuitable my employers expect good Strawberries, and what they require it is only right that we should strive our best to provide. I tried various plans and placed plants out at various times and ways before I tried my present method, which has answered very well so far, for this year the crop was very heavy and fine. Having selected the ground as early in the winter as convenient I dig it as deeply as I can without bringing up the sand, and give a good dressing of cow manure (this year I have given also a dressing of marl), mixing the manure and soil well together. In March I spread over the surface $1\frac{1}{2}$ inch in depth a dressing of wood ashes, soot, and decayed manure from an old hotbed (manure and leaves). This I fork very lightly in and tread the ground firm. Drills are then drawn a foot apart and Onion seed is sown. Throughout the season the bed is hoed and weeded. About the end of July, as early as rooted runners can be obtained, I take the best and plant them in every alternate space between the rows of Onions 18 inches apart. Showery weather is chosen for the planting time, and the afternoon is preferred. I give a thorough supply of water, and more is seldom required afterwards, as the Onion tops shade the plants a little. When the plants are growing freely and the Onion tops are in the way, we turn these over each way from the Strawberries; this also acts beneficially to the Onions, checking the formation of thick necks. As soon as the Onions are ripe they are removed and the ground is hoed and raked. The Strawberry plants make fine crowns and produce a very good crop of fruit the first year, the fruit being fine, but the crop is not quite so heavy as in the following year. As soon as the fruit is gathered the second year I plant Broccoli between the rows, and when I have obtained what Strawberry plants are required I rake the bed clean. The Broccoli make very good firm growth in the hard ground.

A surface-dressing of half-decayed littery manure is given in April, which the rain washes clean by the time the fruit is ripe, and we are not troubled by thunder showers splashing the soil on

the fruit. In this way I prepare the ground for three crops at one time (Onions, Strawberries, and Broccoli), have a solid and fairly rich ground for planting, and available to plant early, at a minimum expense for labour.—SPADE.

AN AMATEUR'S GARDEN.

HAVING had the pleasure of visiting the garden of a well-known amateur exhibitor—viz., that of Mr. Richard Mann, Howden Dyke, Howden, East Yorkshire, I feel confident that a brief description of what I saw and learnt will interest some of the readers of this Journal. Mr. Mann is a chemical manure maker, and devotes the whole of his leisure to the improvement and cultivation of florists' flowers. I was shown a fine display of African Marigolds, a strain entirely of his own production, and the result of nearly twenty years' careful cultivation. I was told that they have carried off first honours wherever exhibited, including the first prize at the "International" Show of the present year at Manchester. There is a splendid collection of Hollyhocks, many of them great improvements on the older and still existing varieties. For these a plot of land is set apart and specially made up of a strong mixture of clay and sand. Carnations and Picotees seem to be a speciality, and above eight hundred plants in full bloom formed a display I shall not easily forget. Grown on clay soil they seem to flourish, and produce rich colours. Mr. Mann has taken prizes for them at all the chief Yorkshire shows for many years. Phloxes are well grown, and the collection comprises about fifty varieties, including the following, which are very fine. Auguste Rivière, Bellini, Clara, Cameron, Deliverance, Le Lion, Lothair, Madame Domage, Mrs. Laing, Mrs. Grundy, and Roi des Roses. A magnificent bed of Show and Fancy Pansies attracted my notice, the most conspicuous of which were, Rob, Cowan, Thalia, Buttercup, Miss Darling, Marjory, Mrs. Birkmire, Mrs. E. H. Wood, Robt. Burns, De Foe, Dr. Livingstone, Dean Ramsay, John Rowatt, Mrs. Horsburgh, Rev. D. Taylor, Janet Lees, and George Fisher.

I should take up too much of your valuable space were I to refer at length to the beds of Asters, Zinnias, Dahlias, and Roses; but I may remark that whatever Mr. Mann takes in hand he devotes that care and persevering energy to it that has marked his career of twenty-five years as a successful amateur exhibitor. He told me that he had taken above one thousand prizes since 1875 (excluding the present year), for flowers alone.

I am a lover of flowers, and take a great interest in their cultivation, and as a constant reader of your valuable paper I should like to see other notes on "amateurs' " gardens.—HOMO.

THE USE OF FIRE HEAT FOR GRAPES.

THE subject of night temperatures for Grapes has been much discussed within the last few years, and since the re-opening of the subject through Mr. Simpson staging examples grown under his system the weary round is to be trod once more—at least, so it seems. Still the subject is an important one, and if it could be unprejudicially discussed might be not altogether unprofitable. In order to do so, facts must be dealt with and considered and mere assumption left out. For instance, it does harm and not good to assume, as appears to have been too generally done, from what has appeared in the *Scotsman*, as elsewhere, that every bunch of Grapes that gained prizes at Edinburgh were grown on the high-night temperature system. To do so is begging the question entirely, when, for all the public knows, they may have been grown under the cool system. Indeed, we know that some of the very best were. This being the fact, what reliance are we to put on the judgment of one who selects not very good samples of Grapes which are stated to have been grown under the low-night temperature system and compares them with others grown under the same system, but which are very fine, and takes the good samples as proof that high-night temperatures are best? Simply this, such hasty judgment is worth nothing. Nothing but carefully considered and carefully carried out experiments will ever settle the question. Bad Grapes may be seen at any time grown under orthodox conditions so far as temperatures are concerned; but we are not, therefore, to condemn a system whereby many have succeeded. We presume nobody will dissent from this. All we ask is, that the rule be applied in the other case. This is just what has not been done.

It must not be supposed that we are concerned about the defence of Mr. Simpson, for we are not; he is quite qualified enough to do that for himself. But we do say that justice has not been done him in regard to his Edinburgh exhibit. It would be too much to say that the bunches were perfect in regard to setting, but very few growers can show better set bunches. We were visiting some

rather famous Grape-growing establishments just at the time of the Edinburgh Show, and not many of them could have shown much better set bunches: indeed, most were not so good. As some of the growers at these places have, at one time or other, advocated the high-night temperature system, we presume they practise what they preach. If so, the results do not seem to an ordinary observer to be so much better, if indeed so good, as that attained under the system they have condemned. So far in the discussion in the *Scotsman*, few or none of the famous growers have deigned to say a word. Why? Simply this: systems must be judged by the results, and few could show better or even as good results, so far as setting is concerned, as shown by the bunches from Wortley.

The fact is, and we have proved it, that Grapes may be set under very varying night temperatures if other conditions are right. One of these conditions we hold to be thoroughly ripened wood, and this cannot be done so well in October as in August. The application of fire heat at night to the extent it is usually done is, without any doubt, weakening in its results, and Vines under such treatment cannot perfect the same amount of fruit as they could under more natural conditions. The question is, as we look at it, not so much the amount of coal necessary for a given extent of vinery, but when to apply it. I think we are pretty generally agreed that unless Grapes and wood are ripe by the middle of September they are never properly ripened at all, at least in the northern counties of England and in Scotland. Grapes which are green at the beginning of September must, if they are to be ripened at all, be subjected to a regular course of fire heat at a time of the year when coal is least profitably used to assist Vines. We think few will think otherwise; indeed, this part of Grape-growing is a settled one among all good growers. This being so, it will be conceded that unripe Grapes in September are a mistake. There are two ways of having Grapes ripe by the end of August or beginning of September. One way is to allow the Vine to start "naturally," as it is called, and then to keep them going smartly by means of high temperatures night and day.

This system we think wrong and wasteful—wasteful, not so much of coal, as of the energy of the Vines. The amount of coal necessary under the different systems we do not consider varies much, but the results are not equal, and we are sure, for ourselves at least, that the most economical way is to assist the Vines to start early, so that wood and fruit may be ripened while the day is long and the sun bright. While Vine leaves and shoots are young they may be forwarded with fire heat nearly as rapidly as with sun heat, but they cannot be ripened to perfection so late as the end of September or October. Vines started in February may be allowed to proceed leisurely through the summer, and will benefit greatly by being treated to a refreshing coolness at night; but if they are allowed to start late in spring there is nothing for it but high temperature night and day, especially in such seasons as the present has been in the north, if we are not to be caught with green Grapes in September. When this is the case fires must be kept on then, and not to the best purpose.

Judging from the examples staged at Edinburgh this is Mr. Simpson's position. His Grapes were green. How does Mr. Simpson ripen them? He must burn coal, in no stinted quantities either, for weeks after other peoples' fires are out. The majority burn their coal at night, and so have their crop ripe early. Mr. Simpson, in order to have his ripe, burns the coal late in autumn. Neither system we consider right. Low night temperatures we decidedly favour, but when this system is to be followed early starting is necessary to ensure the best results. We know some have tried low night temperatures and have ultimately abandoned them for the reasons we have given. To all such, and to others who may wish to give the system a fair trial, we say, Start Vines early; at least, not later than the beginning of March, and never fail to maintain good day temperatures,

especially with bright sunshine. Do not imagine you are going to save coal, though. Saving a ton or two in spring or summer, to be compelled to burn as much or more to little purpose late in autumn, is not saving coal but wasting it, and spoiling the Grapes beside. It is well if such a system does not eventually end in having the Vines also spoilt, for ill-ripened Vines not only do not fruit freely, they are extremely liable to fail altogether, and that prematurely.—SINGLE-HANDED.

TREE-LIFTING IN SUSSEX.

As the season for transplanting trees and shrubs is approaching it becomes important to gather experience on the subject, with the object of ascertaining the safest and most expeditious methods of doing the work. As I was aware that some tree-lifting implements had been added to other important inventions of an occasional correspondent of the Journal, "*PHILODENDRON*," and learning that these implements could be seen in use in Dr. Newington's garden near Ticehurst, I recently visited the garden in question; and now, having had the opportunity of inspecting the working of the method, I unhesitatingly pronounce it excellent. The combined strong curved prongs, tubular lever, and fulcrum represented in the annexed engraving, constitute a garden appliance of substantial utility. Shrubs, Conifers, fruit and forest trees that have attained a considerable size can be lifted far more quickly and satisfactorily than by digging them up in the ordinary manner; indeed, it is placing a moderate estimate on the capacity of the implements by stating that the three

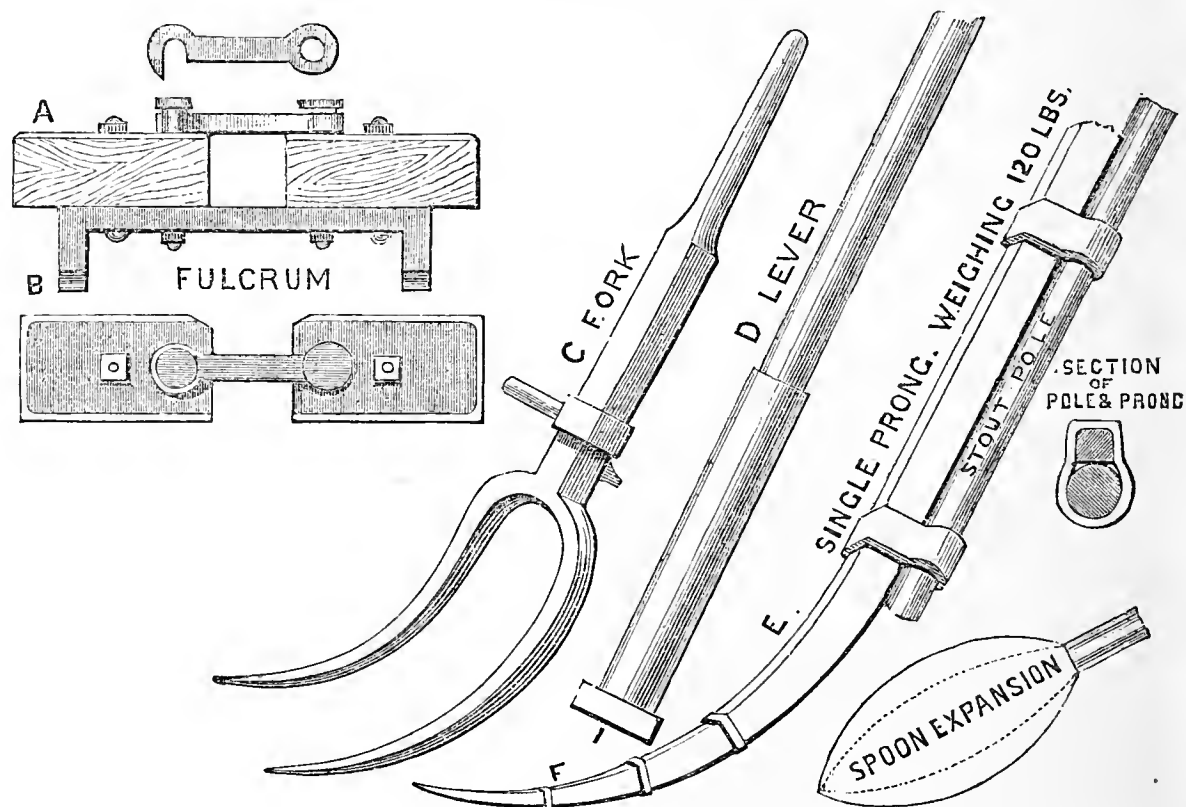


Fig. 53.—Tree-lifting Implements.

men who were working them could do more work in a day than it would be possible for them to accomplish in a week with spades and ordinary digging forks, and the great extent of roots secured by the new system fully accounts for the remarkable growth of the specimens that have been removed. Spruces 10 feet high have received no check whatever. In a large plantation of Larches there were only two failures; and the trees forming a Holly hedge, more than fifty years old, removed last year, are now quite established and growing in their new position. The prongs are made in different sizes for lifting moderate and large trees, and two or three of them can be inserted round a specimen 10 or 12 feet high and the tree be raised out of the ground in two minutes, the maximum quantity of roots being drawn out and soil retained, as the curved prongs meet under the ball and lift it out as if it had been cast in a mould. This new tree-lifting apparatus cannot fail to be of great service on private estates and in public plantations in this and other countries where the work of tree-lifting involves such a large annual expenditure.

The following instructions for using the implements, prepared by the inventor, will render the subject plain to all.

Place the fork c at from 2 to 3 or 4 feet from the trunk of the tree, take the handle in the hands and move it from side to side, and backwards and forwards: this movement will cause the curved tines to penetrate under the trunk of the tree; now slip on the

tubular lever D, and if the tines have not penetrated deeply enough, put the foot on the treadle and move the fork again as before. A spit of earth is to be removed from the back of the fork. The fulcrum A B is now to be placed on the earth near the shoulders of the fork; the upper bar of the fulcrum is to be thrown back so as to allow the handle of the fork to rest upon the lower bar. Now weigh down the lever so as to displace the roots of the tree, then lift up the lever, shut the upper bar of the fulcrum, and weigh the lever on this upper bar, when the ball of earth, the roots, and the tree will be suspended high enough to allow of an iron plate, or trolley, being drawn under the ball. It is a good plan to place sand or fine mould round the fibres of the roots when planting.

Two tree-lifters may be used with great advantage when the trees are large. Three have been used for balls 7 feet in diameter. The spoon expansion, made of Whitworth steel, is affixed on the large prong F E for lifting large specimens.

Further particulars in reference to the invention, which is patented, will be supplied by Dr. Newington, Ticehurst, Sussex.—J. WRIGHT.

REVIEW OF BOOK.

Garden Pests and their Eradication. L. Upcott Gill,
170, Strand, W.C.

THIS little work is more pretentious than another recent work upon the subject of injurious insects, since it attempts to embrace the species that are hurtful in the flower garden as well as those that attack vegetables, fruit, and timber. Owing to this it is to some extent meagre, and an alphabetical arrangement is carried out that is insufficiently clear, because in some cases the insect appears under its familiar name and in others it is placed under the plant it mostly frequents. Thus, under the heading of "Rose Grubs and Sawflies" a variety of insects are briefly mentioned; and the familiar ground weevil (*Otiorhynchus sulcatus*) is entered as a "Pot Maggot," and other points of the arrangement are peculiar. We think that the better plan in such a handbook is to take the insects with the names of the plants they frequent as headings, adding, perhaps, in a separate arrangement the species that are general feeders. The entomological information is on the whole correct; and the illustrations, though of a popular nature, are sufficiently recognisable with a few exceptions. In one or two figures the artist seems to have given the insects an attitude somewhat comical, as in the representation of a crane fly (*Tipula oleracea*). It would have been an advantage if the author had noted throughout the times of appearance in the larva and imago states. A list of remedies in the way of preventive applications and destroyers has been compiled from various sources and is a useful feature in the book: but some of them have claims which are not sustained in practice, and others of real service are omitted. We thought the idea that wireworms would eat oilcake until they burst had been long ago exploded; and although it is stated that sulphuring the pipes in houses and heating them will kill thrips, it is not stated that the fumes will often first kill the foliage of the Vines and plants. Yet if nothing new in the way of remedies is advanced—and it does not appear to be sufficiently explained that dilute sulphuric acid is only to be used where nothing grows which it is wished to preserve—still no gardener will regret the trifle laid out upon this helpful volume.

THE PROPAGATION OF CONIFERS.

(Continued from page 263.)

GRAFTED plants require much attention after the scions are thoroughly united to the stock. They all need examining during March, and the upper portion of the stock must be cut off close to where the scion was affixed. Small stakes about 9 inches or a foot in length should be in readiness, and great care must be taken not to injure the young plant when removing the useless portion of the stock. As the work proceeds each young plant will require a stake, which should be made secure to the stock by means of bast matting below the place where worked, with another tie round the union to prevent the scion being broken off. The growth must be tied upright if it does not assume that position. This is rather a tedious operation, but when completed the only attention needed is an abundant supply of water as the soil becomes dry. Ventilate when the weather is favourable, increasing the ventilation considerably as the spring advances until the plants are thoroughly hardened.

The time of planting varies considerably both with the grafted plants and those raised from cuttings which have been wintered outside. As a general rule the spring is a busy time in all nurseries, and much work has to be done about the time these should be planted out. After the season for sending out Conifers

those remaining unsold are lifted and replanted, so that no ground will be wasted. In some instances they are all removed, in others a portion from one end only are lifted to fill up the blank spaces. In well-managed nurseries the latter is only done when the remaining plants had been transplanted the previous year. After the shifting is done there is generally plenty of vacant ground. In most instances this is the time when the young stock is planted out. The ground is well dug, and the plants are placed 9 inches apart in rows a foot asunder. The plants are turned out of the pots without disturbing the roots. A little soil is placed to each and pressed firmly round the ball with the foot, then a little manure is placed along the row and finally finished off with soil. The manure is not dug into the ground as is generally practised in private establishments, but it is placed close to the roots of the plants, so that when they commence rooting they quickly reach it. These plants are only removed when they require more room (which is in two years) and when sold.

Many Abies, Pines, and Piceas, as well as *Cedrus* and *Araucaria imbricata*, are raised from seed annually. The common kinds are sown outside in beds during the spring months at the same time as the Larch seed is sown. Before sowing the seed the whole is soaked in a large tank or other suitable place. The choice kinds are sown in pans or in a frame prepared for them, where they can remain until large enough for potting or planting out. The choicest kinds are often potted, by which means they can be planted out afterwards when convenient. This is not the case when planting from the seed bed, as the operation must be performed in the season. Some few Abies, such as *A. Englemanni glauca* and other beautiful varieties, are increased by grafting, employing some of the common kinds as a stock; but there appears to be more difficulty in successfully grafting Abies or Pines than the majority of Conifers, as they do not take readily to the stock.—WM. BARDNEY.



HARDY FRUIT GARDEN.

LATE Plums have not ripened well owing to the continued rains. Many fruits have cracked, and some are falling from the trees, the footstalks having shanked. Those valuable kinds, *Coe's Golden Drop* and *Ickworth Impératrice*, will be in condition some time yet, and they will hang for a considerable time on the trees if the weather prove favourable and means are taken to exclude wasps and flies, but any fruits quite ripe will also keep good if gathered and placed singly upon shelves in a light airy fruit-room. Continue gathering Apples and Pears as they become ripe, placing the choicest singly upon shelves in the fruit-room, which ought to be thoroughly cleaned. The room must also be kept dry and cool. Filberts and other Nuts should be gathered and spread out thinly in an airy room, but should not be divested of the husks.

Where root-pruning is deemed necessary to check over-luxuriance of growth, and to induce the formation of fruit-spurs or shorter-jointed fruitful wood, it should be attended to as soon as the growth is complete and the wood somewhat hardened, and may safely be performed between now and the early part of November. When the growth is very gross and the wood comparatively soft, root-pruning must not be performed until the leaves are falling; as, if done too early, the sappy growths will, if the autumn be bright and dry, shrivel and die back. This particularly applies to Peaches and Nectarines, and to trees generally that have made young shoots of some length in the current season. It is difficult to give any precise directions for root-pruning, much depending on the vigour and size as well as age of the trees; but as a general rule a trench should be formed at a distance from the stem equal to about one-third the height of the trees. If the roots are thick only those should be cut or some of them, leaving the small roots intact. From the trench towards the stem the loose surface soil should be removed, and the soil removed from amongst the roots without injuring or disturbing them too much, and they may, especially if deep, be lifted, laying them in fresh compost, and making the soil firm around them. A mulching

of short litter will make all safe for the winter, and encourage root-formation. At the time of root-pruning any useless shoots may be removed from the trees, so as to admit abundance of air and light in order to thoroughly ripen the bearing wood or spurs for next season.

Intending planters should visit a nursery in good time and select their trees, and arrange for their being carefully lifted and packed with as little exposure of the roots as possible. A short list of reliable kinds may not be unacceptable to inexperienced fruit-growers. South walls are suitable for Peaches, Nectarines, Apricots, and Figs, and generally a tree or two of some early or desirable kind of Plum and Cherry. *Peaches*.—Alexander, Hale's Early, Dr. Hogg, Grosse Mignonne, Royal George, Noblesse, Dymond, Barrington, Stirling Castle, and Lord Palmerston. *Nectarines*.—Lord Napier, Rivers' Early Orange, Violette Hâtive, and Pine Apple. *Apricots*.—Kaisha, St. Ambroise, and Moor Park, with Shipley's for preserving. In some localities Apricots succeed on east walls. *Cherries*.—Belle d'Orleans, Empress Eugénie, and May Duke. *Plums*.—Early Favourite, July Green Gage, and Green Gage. Where Peaches do not succeed against walls those with a south aspect may profitably be occupied with Plums of the choicer kinds, such as Green Gage, Jefferson, Kirke's, Transparent Gage, and Coe's Golden Drop. *Figs*.—Brown Turkey, White Marseilles, and where there is plenty of space Brunswick. East walls are suitable for Cherries and Plums. *Cherries*.—May Duke, Bigarreau Napoleon, Governor Wood, and Nouvelle Royale. *Plums*, *Dessert*.—July Green Gage, Green Gage, De Montfort, Denniston's Superb, Kirke's, Jefferson, Transparent Gage, Purple Gage, Guthrie's Late Green, Coe's Golden Drop, and Ickworth Impératrice. *Culinary Plums*.—Early Prolific, Czar, Prince Englebert, Pond's Seedling, Prince of Wales, and White Magnum Bonum. *Pears* are suitable for west walls, also east; some of the most suitable are Jargonelle, Beurré d'Amanlis, Gratioli of Jersey, Beurré Superfin, Louise Bonne of Jersey, Marie Louise d'Uccle, Durondeau, Doyenné du Comice, Maréchal de Cour, Marie Louise, Beurré Diel, Van Mons Leon Lelerc, Passe Colmar, Beurré d'Aremberg, Glou Morceau, Winter Nelis, Josephine de Malines, Bergamotte Esperen, and Ne Plus Meuris. North walls are most suitable for Morello Cherries, but such Pears as Jargonelle, Williams' Bon Chrétien, and Comte de Lamy succeed fairly, and some of the free-bearing kinds of Plums—Early Prolific, Victoria, Mitchelson's, and Prince Englebert, with Belle de Septembre. Cherries of the Duke and Kentish class also succeed, Currants being grown in such positions for late use. Apples are seldom given a place against walls, but the fruit is much finer so grown than in the open. Some worth a place are Cobham, King of the Pippins, Melon, Dutch Mignonne, Northern Spy, Ribston Pippin, Cox's Orange Pippin, Adams' Pearmain, and Reinette du Canada.

FRUIT HOUSES.

Vines.—Late Grapes that were judiciously assisted by fire heat in spring have crops of fine well-coloured fruit, calculated to winter much better than such as still require heat. Liberal ventilation will be required on all favourable occasions, and as the foliage ripens the temperature may be allowed to fall to a minimum of 50°. Ripe Grapes of the thin-skinned varieties, such as Hamburgs, should be examined twice weekly, removing decayed berries, stopping lateral growths, the houses being dry and cool, employing fire at night only to maintain a minimum temperature of 45° to 50°, and avoid sweeping, or dust will accumulate on the bunches. In order to secure the ripening of the wood of young Vines maintain a high and dry atmosphere by day, shutting off the heat and ventilating freely at night. To check growth the laterals should be moderately stopped; but not so much as to give a sudden check or cause the starting of the principal buds. If former directions have been followed the earliest Vines have been pruned, and a good supply of fermenting materials should be prepared for making a bed inside the house, and for covering the outside border at least a fortnight before fire heat is commenced. A mixture of about two parts leaves with one of stable litter is suitable, giving a milder and more lasting heat than if composed of litter alone. If materials of this description are not obtainable a covering of litter, or better of bracken, should at once be placed on the border. For covering the borders of late houses a supply of this material should be procured, or failing this dry litter

or straw should be employed, as an equable temperature at the roots is essential to keep Grapes in good condition.

Pines.—Young growing plants must at this season be so arranged as to obtain the fullest benefit of sun heat, and as this is diminishing the temperature at night should also be reduced, maintaining it at 55° to 60°, and 65° in the daytime by artificial means. Ventilate freely whenever the weather is favourable. Particular attention must be given to watering, examining the plants at least once a week, and whenever water is needed supply it liberally. Plants in shallow beds of plunging material heated by hot-water pipes require water more frequently than those in beds of fermenting material. Fruiting plants, with the fruit in an advanced stage, must not be overwatered, as when this occurs and the temperature is not high the fruit sometimes turns black at the centre during the winter and early spring months. The temperature should be maintained at 70° at night, ranging the temperature from 75° to 90° in the daytime, closing at 85°, sprinkling the pathways when they become dry, and occasionally syringe the plants on sunny afternoons, keeping the bottom heat regular at 85° to 90°.

Cucumbers.—The plants for winter fruiting must be planted out not later than the middle of the month to ensure a good supply of fruit by midwinter. Hot-water pipes are unquestionably the best means of affording bottom heat, but where fermenting materials are employed they should be had in a sweet condition. Be careful not to overcrop the autumn-fruited plants, striving to maintain a healthy growth, which can only be secured by close and regular attention. Maintain a night temperature of 65° to 70°, 75° in the daytime, and ventilate moderately whenever the weather is favourable. Syringe lightly on bright afternoons, gradually reducing the supply of moisture as the days shorten. Place a little fresh compost to the autumn-fruited plants about every ten days, affording weak tepid liquid manure twice a week, and fumigate moderately but repeatedly if aphides are observed.

Melons.—Water should only be given to prevent the foliage flagging. Keep the foliage thinned so as to admit light freely. The last batch of plants have their fruits swelling, which must be supported by tables, securing a temperature of 70° at night and 75° in the daytime, or more from sun heat. Fruits ripening need a dry warm atmosphere and a little air constantly; those swelling require moderate atmospheric moisture, syringing lightly on bright afternoons. In dung-heated pits and frames the heat must be maintained by linings, not giving any water at the roots after this. Ventilate freely whenever opportunity offers. Any fruits swelled to a good size and not likely to ripen in the frames for want of heat may be cut with a portion of stem, and placed in a sunny position in the Melon house or other warm structure.

FLOWER GARDEN.

Plants required to be saved from the frost must without further delay be taken up and placed under shelter. Tricolor, bronze, and any Pelargoniums of slow growth need not be cut back much, merely removing any crowded branches, leaving the other shoots their full length to afford a supply of cuttings in spring. The green-leaved varieties, being hardier, are not injured so readily as the ornamental-leaved varieties. Old plants, from the freedom with which they bloom, are preferable to those from cuttings struck either in autumn or spring, and where room is available these should be preserved, cutting back the tops and roots, and pot in as small pots as practicable, or they may be packed closely in boxes. The tender succulents, such as *Echeveria metallica*, *Pachyphytums*, *Kleinias*, and *Sempervivum tabulæforme*, should be taken up or protected from frost, for if in the least injured they are difficult to winter. Those recently propagated, also *Coleuses*, *Iresines*, indeed all plants that are tender and likely to be wanted for propagating purposes, should be housed at once.

Herbaceous plants need attention, removing decayed leaves and flower stems. *Anemone japonica* and its variety *alba* has abundance of flowers. *Aster Amellus*, *A. Amellus majus*, *A. coccineus*, *A. dumosus*, *A. grandiflorus*, *A. longifolius formosus*, *A. spectabilis*, *A. nova-belgi*, and *A. patens* are fine for autumn; *Tritomas* are grand, and so still are *Phloxes*. *Schizostylis* when the autumn is mild is

a fine border plant, and so are Tritonias for late summer. *Statice latifolia*, *Zephyranthes candidus*, *Sternbergia lutea*, *Colehicum autumnale* vars., *C. speciosum*; *Crocus nudiflorum*, *C. sativus*, *C. Sieberi*, and *C. speciosus*; *Cyclamen hederæfolium*, *Hypericum ealycinum*, *Fuchsia corallina*, *F. globosa*, *F. Riccartoni*, and *F. graeillis*; *Plumbago Larpentæ*, *Polygonum vaeciniifolium*, and *Sedum spectabile*, are fine for late summer and autumn. Hollyhocks as they cease flowering should have the stems cut away, which will assist the production of shoots for cuttings, and if those are taken off with a heel they will root in a close frame with a little heat. Seed may yet be sown, and young plants should be pricked out or potted off, and if protected in cold frames they will bloom finely next year. Any gaps should be filled with Brompton Stocks, Wallflowers, and other gay spring-flowering plants. Seedling perennials, also biennials, should now be planted where they are to bloom. Chrysanthemums must have supports, and should have liquid manure water liberally. Hyacinths, Narcissuses, and Tulips intended for mixed borders can be planted at once. Anemones for early bloom should be planted. The French double Chrysanthemum-flowered varieties are very fine and very useful for cutting. *A. fulgens* is very bright in colour and valuable for cutting. Irises, both English and Spanish, should be planted, also the early-flowering Gladioli, such as *ramosus*, *floribundus*, *Queen Victoria*, *cardinalis*, and *byzantinus*. Complete planting layers of Carnations, potting choice kinds and placing them in frames. Choice Pansies may be potted, also rooted cuttings, placing them in cold frames. Beds of common varieties and seedlings should be formed, and the plants will bloom finely early next season. Prick off choice seedlings in frames. Pinks and Clove Carnations may also be planted. Ranunculuses for cutting are unsurpassed and should be planted now for early blooming, the double French being very free and effective. Where there is a great demand for cut flowers in spring *Narcissus biflorus*, *N. Poeticus* and its vars., *N. angustifolius*, *N. ornatus*, and *flore-pleno* should be grown in quantity.

PLANT HOUSES.

Greenhouse.—*Neriums* are not so much grown as they deserve to be. The flowers are very useful, and small well-flowered plants are very effective. Cuttings taken of shoots that have ripened the wood and set their flower buds may be struck in brisk heat, and make useful decorative plants in 6-inch pots. Any old plants that have a number of flower buds partially expanded will open them better in an intermediate temperature than in a greenhouse or conservatory. Large plants that made their growth early in the season and were turned out in a sunny position to ripen, should not have more water than is needed to keep the foliage in good condition; and when the flowers are showing the plants may be moved to a light position in a house where a temperature of 55° artificially is maintained, if it is wished to accelerate the flowering.

Whilst the weather continues mild admit plenty of air both night and day, which will ripen the growth of the plants. Give sufficient but not too much water; do not allow the soil to become too dry before applying it. Late *Fuchsias* should have encouragement to continue flowering, applying weak liquid manure, also keep the seed pods removed as soon as the flowers have fallen.

A few of the most forward plants of *Daphne indica* may be placed in a temperature of 50° artificially, which will cause them to flower earlier, and they bear more cutting than is the case with later plants, as they will make more roots and corresponding growth in spring.

Orchids.—Plants that have completed growth must have a moderate supply of water, being careful not to wet the crown of the plants. Those on blocks still growing require their roots well moistened every morning either by syringing or dipping, and those that have completed their growth need damping every two or three days; but the grower must be guided by the condition of the atmosphere in which the plants are grown. Many Orchids naturally grow now, and should occupy the most favourable part of the house. Regulate the moisture according to character of the plants; those growing must have a moist atmosphere, those that have finished growth need a drier atmosphere and more air. Ventilation must be regulated by the weather. *Phalænopsids* must be very carefully supplied with moisture, as, should the leaves be overcharged with moisture, they

are likely to decay. Encourage *Calanthes* with heat and moisture, keeping the leaves clean by frequent sponging. Many showy Orchids will yet be blooming, and the practice of moving them into a drier atmosphere may be continued, the temperature being kept at 50° to 55°, in which they will last longer and be more enjoyable. A decline must now be made in the temperature. For the East India house allow a mean of 70° by day and 60° at night; *Cattleya* house, 65° by day and 55° at night; and *Odontoglossum* house, 55° by day and 45° at night. Let the woodwork and glass, both inside and out, be thoroughly cleansed. Take advantage of wet weather to give the plants a thorough cleaning. Keep a sharp look-out for slugs, searching for them at night with a lamp.



CONTRACTING SPACE OF HIVES.

THE practice of contracting the space of hives probably originated in the Stewarton system. This hive in the height of summer has three workshops or breeding boxes 6 inches deep, and some supers 4 inches deep, all 14 inches wide. The supers are removed at the end of the honey season, and when the bees begin to sit in less compass one or two of the breeding boxes are removed. In this way the bees have less space to keep warm. Some of the most advanced men of the bar-frame school have, since they adopted larger hives, followed the practice of making their hives less before winter sets in. Some frames are removed, and the partition frames or walls are so placed that the bees are confined to six or eight combs during the winter. The combs removed are kept in a dry place for future use.

The question I wish to see discussed is this: Is this practice healthful and helpful? If it is good for bees and advantageous to bee-keepers, in what sense is it so? I shall be glad if our friends who have used contracted hives in winter will favour the readers of the Journal with their experience and opinions. The question is both interesting and important, and therefore should be well understood.

Though our hives are not capable of contraction, and my experience on this question may not be deemed of great value, the question has been before me all my life. My father thought that hives not filled with combs, and hives eked or enlarged, kept their bees through winter better than hives without any empty space in them kept theirs. My experience forbids me to fear losing bees through having much empty space in stock hives in winter. For many reasons we like the stocks to be full or nearly full of combs in autumn. But many times have we known large hives not half filled with combs kept for stock come safely through winters of severity and succeed well; indeed I do not remember an instance of a hive suffering loss of population owing to its size or to unoccupied space in it. At the present time we have some hives very strong in bees but not filled with combs. The question then arises: If the empty space were cut off by some contrivance, would the bees be healthier or live longer? Would the hives be stronger in spring? This is the question now offered for discussion. It is a wider question than appears at first sight, for the removal of combs and the contraction of hives in winter may be more advantageous in some apiaries than in others. It is known, of course, that where hives are not filled with combs in autumn the bees have to spend both time and honey in the manufacture of combs in spring, and therefore do not swarm so early as those quite filled with combs, all other things being equal; but this does not touch the question of the health of bees in small houses or quarters in winter. On the question thus mooted let us have a full expression of opinion.—A. PETTIGREW, *Bowdon*.

SUGAR AND SUGAR-BOILING.

"ONE of the Great Unwashed," who seems to be little the wiser for Mr. Cheshire's excellent article on sugar, wishes to be informed, through the Journal, what sort of sugar for bee-food he is to ask from his merchant, whether loaf or soft sugar, whether white or brown, whether with large or small crystals, and whether beet sugar is as wholesome as cane sugar, &c.

In this country sugar sold for domestic purposes is now rarely if ever adulterated. The use of sand and starch for this purpose has been long abandoned as being so easy of detection, and grape sugar manufactured from corn starch, though said to be used in

New York for purposes of adulteration, is by its nature precluded from being mixed with any good granulated cane or beet sugar. The main difference between the various grades of domestic sugar is thus not so much a question of adulteration as of their degree of refinement. Whether the source of the saccharine matter be sugarcane or beetroot, the resulting sugar *in its purity* is chemically and in appearance the same, and known as cane sugar. But grades vary according to the amount of organic matter; uncrystallisable grape sugar, mineral salts, and water remaining as a result of imperfect refinement, and in some cases of the lime used in one stage of the process but not thoroughly removed. There can be no doubt, therefore, that the more highly refined sugars, white, dry, crystalline, and giving a perfectly clear solution, though costing a little more, are the best and cheapest in the end. Among these grades I find that known as "Dutch crushed" to be generally the best value for the money, and I am strengthened in this conclusion by finding it most generally preferred by our large confectioners and preserve-makers. The lower the grade of sugar the more water and organic matter must be paid for, until we reach a grade containing so much molasses as to be positively destructive to the bees.

Having selected our sugar we come to the method of preparing it for the food of bees. Given in its dry state, bees will readily take it if water be supplied by its side; but this method of feeding has three disadvantages—the bees are very apt to waste it by carrying the dry grains outside the hive; the process is slow and necessitates a long-continued agitation among the bees; and there is frequently a loss from the solution afterwards crystallising in the cells. Boiling is therefore resorted to as a means of reducing the sugar as near as may be to the nature and consistency of natural honey. A few facts and figures relative to sugar-boiling may not, therefore, be out of place.

By placing a quantity of crushed sugar with a little water in a brass or tinned kettle over a brisk fire we note the following distinctive changes which the application of heat will cause it to assume. First, the lumps break up and dissolve, forming a *simple syrup*. By increasing the heat till the syrup boils the liquid of course becomes more and more dense, until it reaches a point where not enough water remains to hold the sugar in perfect solution. If it be now set aside and allowed to cool gradually, the excess of sugar will deposit itself in clear crystals on the sides and bottom of the vessel, and we shall have what is usually known as *rock candy*. If, instead of setting it aside, we continue the boiling, nearly all the water will soon evaporate, and the sugar will manifest a tendency to assume a granular condition, especially upon the sides of the vessel. A few degrees of heat beyond this point, and we have the sugar in a melted form of a thick pasty consistency, but clear and transparent still. A spoon dipped into the mass will leave a thread behind it on its withdrawal, and if the portion removed be plunged into cold water it will at once become hard and brittle as a pipe stem. It has now reached that condition where the confectioner, by a few simple manipulations, can produce very many changes in its appearance, and it is from sugar in this state that the greater number of our rocks and candies are produced. Very little more heat will burn the mass, resulting in the formation of caramel, which is little better than poison to bees. This takes place at a heat of about 260°.

If bee candy is wanted the vessel is removed from the fire when the liquid on trial on a spoon in cold water is viscous enough to leave a thread on the finger. Stirring is continued till the mass begins to set, when it is poured into paper moulds laid in plates or trays. For liquid food it must not be allowed to boil so long, else it will granulate on cooling. Three pounds of sugar will make five pounds of syrup as thick as it is possible to make it, and prevent crystallisation. But if cream of tartar or vinegar be added while the syrup is on the fire it will so hasten the change into uncrystallisable sugar that even a greater consistency may be attained. There is, however, no need for supplying bees with syrup thicker than newly gathered honey. I therefore prepare my syrup as follows for winter food. To 15 lbs. of white crushed sugar I add 6 lbs. of water and half a teaspoonful cream of tartar, or a wineglass of vinegar, boil briskly for five minutes or till the whole loses 1 lb. by evaporation, and use when nearly cold. The syrup is then as nearly as possible like newly gathered honey, and is very quickly sealed over by the bees.—WILLIAM RAITT, *Blairgowrie*.

TRADE CATALOGUES RECEIVED.

J. Cheal & Sons, Crawley, Sussex.—*Catalogue of Trees and Shrubs*.
Francis & Arthur Dickson & Sons, The Upton Nurseries, Chester.—*Catalogue of Select Roses*.
Cranston Nursery & Seed Company, Hereford.—*Catalogue of Roses*.

Louis Van Houtte, Ghent, Belgium.—*Catalogue of Azaleas, Camellias, and Rhododendrons*.



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Address (G. S.).—If you write to Mr. W. Lovel, Weaverthorpe, York, he will, we think, give you the information you require.

Books (R. Reid).—There is no work arranged in the manner you refer to in your letter, nor would such a work give general satisfaction. You will find more practical information on gardening generally, including annual, perennial, and florists' flowers, in our "Garden Manual" than could be given in any such catalogue you suggest. The "Garden Manual" can be had from this office in return for 1s. 9d. in postage stamps.

Heating by Gas (A. G.).—You have sent a letter to the address we gave you to which you have omitted to attach your name. If you make good the deficiency your letter will be attended to.

Late Roses (R. C.).—As your trees are so few you might easily protect them by making a rough framework and covering with canvas or some other material during inclement weather and frosty nights, the framework being sufficiently high to prevent the canvas resting on the blooms or buds.

Continental Nurserymen (A Market Gardener).—You will find the addresses of all the leading continental nurserymen in the "Horticultural Directory" that will shortly be published. When you are established as a nurseryman your own name and address can be added if you send us the necessary information; in all probability, however, this will not be in time for the next edition unless you become established quickly.

Gros Colman Grape (T. C.).—Gros Colman is the name by which it was introduced, and it is under that name that it first appeared in M. A. Leroy's catalogue of 1860. It seems to have travelled westward from the East, for in the catalogue of Jacquemet-Bonnefont of Aunonay for 1858 it is mentioned by the name of Gros Colmar. In that of De Bavay in 1852 it is called Gros Colman, and this is the earliest record we can find of it in nurserymen's lists. The rule is to regard the first names of fruits as correct, and if the name of Gros Colmar can be found recorded previously to 1852 that name may then be regarded as the correct one.

Figs Not Ripening (R. G.).—The trees are overburdened with fruit, and the temperature is not sufficient to ripen the crop. Twelve-inch pots are a suitable size for trees in pots, but if more root space is required we should pot the trees as soon as the second crop is ripe. The fruits will certainly not ripen in a house having no artificial heat, but will probably fall, and would be better removed at once, as they only weaken the trees and prevent the ripening of the wood, upon which a full first crop mainly depends. If the trees were placed in a house with a temperature of 60° to 65° artificially and air admitted constantly they would probably ripen the second crop.

Heating Fernery (J. W.).—As no pipes for heating can be admitted into the house you will derive more satisfaction by growing hardy Ferns, of which there are so many attractive forms, than attempting the culture of tender species. The dry heat of a stove would injure the slender fronds of these, and render the plants unsightly. We are unable to recommend any stove that would answer your expectations, but if any of our readers have found a stove satisfactory for heating a fernery we shall be glad to hear from them.

Potato Awards (C. M.).—We are obliged by your letter. As was stated in our report of the Potato Show the new varieties were not adjudicated upon on the day of the Show, and if you refer to page 235 of our last issue you will find the reason of the necessary delay in publishing the awards. Four varieties are there named as having been tested and certificated by the Judges.

Grapes for Christmas (Inquirer).—Lady Downe's is the best-flavoured late Grape, and started early is in good condition at Christmas. Gros Colman is also good at the same time grown in heat. The Vine is a strong grower, and one taking up less room, and good is West's St. Peter's. The best white Grape is the Muscat of Alexandria. Trebbiano and White Tokay are also late Grapes of fair quality. So far as we can understand your wants we think they would be best met by growing fewer varieties, say Lady Downe's and Muscat of Alexandria; but on this question you must judge for yourself.

Nurserymen's Yearly Tenancy (An Anxious One).—Your question is not sufficiently clear for the case to be understood. If there is no special agreement to the contrary a nurseryman, like any other tenant, must have a written notice of six months to give up possession of his holding, the six months terminating at the time at which he took possession. Thus, if he took possession at Michaelmas, and did not receive notice to quit until June, he could not be disturbed until Michaelmas in the following year; but if, on the contrary, he received a proper notice fully six months before Michaelmas he would have to leave at the time stated in that notice.

Paint for Greenhouse (F. C.).—For the inside of the house there is certainly no better paint than that made of the best whitelead, and we doubt if any paint can surpass it for outside work, though some prefer the anti-corrosion

paints; for the inside of houses they leave the surfaces too rough, and the painted work cannot be easily washed clean when washing is needed. The question of its application depends obviously on the manipulative skill of the amateur. Some amateurs are excellent painters, and others the reverse.

Staging for Greenhouse (*Chas. Diamond*).—The plants you name can be grown successfully on a stage 4 feet from the glass by elevating such plants as need it on inverted flower pots. You would also find a broad shelf along the back of the house and about 18 inches from the glass of great value for nearly all plants in a young state; in fact we advise you to affix a shelf broad or narrow wherever you find it convenient for doing so, and your greenhouse will be doubly useful.

Tuberous Begonias (*H. W.*).—You will find a method of wintering these described on page 284 of our last week's issue. The note was communicated by the manager of one of the finest flower gardens in the kingdom in which Begonias are grown extensively and successfully. The present is the time for taking up the plants, and you can, of course, place them in pots if you prefer instead of storing them in boxes. Not much soil is removed when the plants are first taken up, but it is only reduced after the tops are withered if the corms are stored thickly in boxes.

Rust on Grapes (*J. C.*).—The Grape sent resembles Mrs. Pearson. There are many causes of rust, but the most common is the admission of a strong current of air after the sun has raised the temperature of the house rapidly, thus inducing the deposition of moisture on the comparatively cold surface of the Grapes; the air then admitted causes rapid evaporation, and rust ensues. Rust is often a consequence of sprinkling highly heated pipes with water, the vapour produced being rapidly condensed on the skin of the berries, and then air is admitted to allow of the moisture passing off. Rust may also be caused by cyringing with water impregnated with chalk or iron, and in the early stages of growth by fumes arising from sulphured hot-water pipes.

Vine in Orchard House (*F. C.*).—If the growth of the Vine inside the house is healthy and covers the roof, or promises to do so, we fail to see what you would gain by having the whole length of the stem inside. The best part of the Vine is the top, not the lower portion of the stem. We certainly do not advise you to carry out your project of covering the stem near the house with soil, and then cutting off the Vine there. Nor do we, so far as we understand your case, advise you to remove the Vine, as you might then have more growth in the house from the 8 or 9 feet of stem than could have the necessary light and air for rendering it fruitful. If the growths are removed from the stem outside and it is wrapped with haybands the Vine will flourish, provided the soil is suitable and proper treatment is given to the growths inside the house. If the Vine is unhealthy we should plant a young one in good soil and a suitable position, and gradually remove the old as space was required for the new Vine. We do not comprehend the condition of the bunch of which you complain; perhaps the injury resulted from a sharp current of air when the fruit was swelling.

Pelargonium v. Geranium (*Idem*).—The plants grown in gardens for bedding or decorative purposes under the names of Show, Fancy, or Zonal Geraniums are all Pelargoniums, the true Geraniums being hardy plants, several forming common English weeds. The true Pelargoniums are mostly natives of the Cape of Good Hope, and from the species originally introduced thence the varieties now in cultivation have been obtained, either as sports or seedling variations produced by crossing and hybridising. The chief botanical characters that distinguish Pelargoniums from Geraniums are that the former have flowers in the majority of cases slightly irregular—that is, the petals are not all of equal size, though this is not so observable in the modern type of Zonal varieties. The stamens in the Pelargoniums vary from four to seven, while in the Geraniums they are exactly double the number of petals—namely, ten, or the same number—viz., five. The Pelargoniums, too, have a nectary closely united to the flower-stalk, which is one distinctive character, easily observed by cutting the stalk across just beneath the flower. The so-called Geraniums with scented leaves are all true Pelargoniums.

Covert for Game (*Col. A. B.*).—Your land is probably stiff and good, hence Gorse or Whin does not succeed, as it makes growth in summer which does not ripen well, and is consequently injured or killed in severe winters. The best covert that has come under our notice was formed of small trees or shrubs with clumps of evergreen trees, chiefly Norway Spruce, for the roosting of pheasants. Some Oak trees and Hollies were carefully preserved, and the ground planted near them with Blackthorn and Privet, a few English Yews being interspersed. The Oaks and Hollies were soon taken possession of by the pheasants as roosts, the rank growth of Blackthorn and Privet being such that poachers did not care to penetrate, and was not liked by beaters, but very much praised by the keepers as a preserve. Plants were placed 4½ feet asunder, and in rows the same distance apart. The Spruces and Hollies were introduced 18 feet apart. Between the Spruces and Hollies in their respective lines the central plant was English Yew, the other plants being Privet and Blackthorn, the covert generally being formed of Blackthorn and Privet, grouped so as to have a pleasing appearance, as it was the home covert, and desired to be as picturesque as possible. There were separate clumps of Blackthorn and Privet, also mixed clumps of Spruce, Holly, Yew, Blackthorn, Hazel interspersed with wild Pear, Crabs, Spurge Laurel, Ivy, Elder, and Dog Roses, the hedges of the latter having a fine effect in autumn. Advantage was taken of hollow wet ground to introduce Birch, Alder, Dogwood, Bitter Willow, and Snowberry. On the margin were planted Rhododendron ponticum, Berberis aquifolium, and B. Darwini in clumps, the Rhododendrons forming capital nesting places for the pheasants. White Thorns, Mountain Ash, Barberry, and Bramble also were introduced to form a covert of an ornamental character with as much berry food for the pheasants as practicable. In March Broom seed was sown, about 8 lbs. per acre; Wood Millet Grass, 4 lbs.; and a similar quantity of coarse tufted Grasses. This covert is only 13 statute acres in extent, but adjoins a large wood, and there is always abundant exercise for the sportsman. Blackthorn alone makes a capital covert; plants 2 to 2½ feet high transplanted are the most suitable. Hazel also should be planted, and Privet, of which by far the best is the strong-growing evergreen Ligustrum ovalifolium. Plant them 4½ feet apart.

Specimens for Naming (*W. H. Pantry*).—We have received no question relative to the Stephanotis nor flowers for naming to which your signature was attached. We have named some plants to "W. H. W.," whose writing resembles your own, but they can scarcely be from you, as we suppose you would not adopt two signatures. The names of the senders of flowers or fruit should always accompany the specimens, whether separate letters referring to them are sent through the post or not. We often receive three or four parcels with no names in them, and as many letters by post stating that specimens have been sent for naming, and if we cannot decipher the stamp of the post office how are we to know to which parcels the different letters refer?

Names of Fruit (*G. B.*).—We have attended to all the fruit that has been received except a parcel from Hereford, and some others that neither contained the names nor initials of the senders. (*J. E.*).—The name of the Pear is Brougham, a seedling of Mr. T. A. Knight, raised from the Swan's Egg. (*Leon*).—1, Flower of Kent; 2, not known; 3, Cox's Orange Pippin; 4, French Codlin; 5, Old Golden Pippin; 6, Kerry Pippin. Your suggestion cannot be carried out, and only six varieties should be sent at the same time. (*H. C. Bingley*).—2, Thompson's; 3, Beurré Lefèvre; 5, 7, and 9, Duchesse d'Angoulême; 6, Beurré Diel; 10, Beurré Clairgeau; 12, Catillac. We cannot name the others. (*Dr. Francis*).—1, Pitmaston Nonpareil; 2, Ord's Apple; 3, Holbert's Victoria; 4 and 5, Not known; 6, Royal Pearmain. (*D. Brown*).—1, Fondante d'Automne. The others are not in condition for naming, not even approaching ripeness. (*J. E.*).—1, Round Winter Nonesuch; 2, Duchess of Oldenburg; 3, Lady's Finger of Lincolnshire; 4, Margil; 5, Sam Young; 7, Grey Leadington; 8, Golden Reinette. (*W. Marshall*).—1, Royal Russet; 2, Cellini; 4, Golden Winter Pearmain; 5, Beauty of Kent; 7, Sops in Wine; 9, Ribston Pippin. Sorry we cannot name the others.

Names of Plants (*G. D.*).—*Menziesia polifolia alba*. (*H. J.*).—*Ceanothus azureus*. (*W. H. W.*).—1, *Eupatorium riparium*; 2, Too withered to be identified; 3, *Panicum variegatum*; 4, *Selaginella Wildenovii*. (*T. O. G.*).—*Bartsia odontites*; it has no marked qualities, either beneficial or injurious. (*F. R.*).—*Amygdalus communis amara*, the Bitter Almond; its fruiting is not an uncommon occurrence in this country. (*J. T.*).—1, *Crataegus orientalis*, the Eastern Thorn; 2, *Crataegus Aronia*, the Aronia Thorn; 3, *Crataegus punctata*, the Dotted-fruited Thorn; 4, *Crataegus coccinea*, the Scarlet-fruited Thorn; 5, *Pyrus Aria*, the White Beam; 6, *Viburnum Lantana*, the Wayfaring Tree. (*P. N. P., of York*).—The tree is an Amelanchier, and probably *A. sanguinea*, but it is impossible to determine with accuracy from such a fragmentary specimen.

Bees (*Puddle*).—You had better procure our "Bee-keeping for the Many," which you can have in return for 4½d. in postage stamps sent to the publisher. Mr. Pettigrew's "Handy Book on Bees" would probably be useful to you. It is published by Blackwoods, and can be had through a bookseller.

Making Syrup for Bees (*H. M.*).—You will find the particulars you require in an article in our present issue. You cannot do better than follow the instructions on feeding that have recently appeared. The white substance which your bees are collecting is pollen.

COVENT GARDEN MARKET.—OCTOBER 5.

OUR market is now assuming a steadier aspect, consignments falling off, and prices are likely to be harder. Pines in good demand.

FRUIT.							
	s. d.	s. d.		s. d.	s. d.		s. d.
Apples.....	½ sieve	1 0 to 3 0	Lemons.....	½ case	18 1 to 3 0		
Apricots.....	doz.	0 0 0 0	Melons.....	each	1 0 2 0		
Cherries.....	½ lb.	0 0 0 0	Nectarines.....	dozen	1 0 6 0		
Chestnuts.....	bushel	0 0 0 0	Oranges.....	½ 100	0 0 0 0		
Currants, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	1 0 9 0		
" Red.....	½ sieve	0 0 0 0	Pears, kitchen..	dozen	0 0 0 0		
Figs.....	dozen	0 6 1 0	dessert.....	dozen	1 0 2 0		
Filberts.....	½ lb.	0 0 0 0	Pine Apples....	½ lb	3 0 5 0		
Gobs.....	½ lb	0 0 0 8	Strawberries...	per lb.	0 0 0 0		
Gooseberries....	½ sieve	0 0 0 0	Walnuts.....	bushel	0 0 0 0		
Grapes.....	½ lb	0 6 4 0	ditto.....	½ 100	0 0 0 0		
VEGETABLES.							
	s. d.	s. d.		s. d.	s. d.		s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6		
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	punnet	0 2 0 3		
Beans, Kidney....	½ lb.	0 3 0 6	Onions.....	bushel	3 6 5 0		
Bect, Red.....	dozen	1 0 2 0	" pickling.....	quart	0 0 0 5		
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0		
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0		
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 9 1 3		
Carrots.....	bunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0		
Capsicums.....	½ 100	1 6 2 0	" Kidney.....	bushel	4 0 4 6		
Cauliflowers.....	dozen	0 0 3 6	Radishes....	doz. bunches	1 6 2 0		
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6		
Coleworts....doz.	bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0		
Cucumbers.....	each	0 4 0 6	Scorzenera.....	bundle	1 6 0 0		
Endive.....	dozen	1 0 2 0	Seakale.....	basket	0 0 0 0		
Fennel.....	bunch	0 3 0 0	Shallots.....	½ lb.	0 3 0 0		
Garlic.....	½ lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0		
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0		
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 1		



POULTRY AND PIGEON CHRONICLE.

CONTINUOUS CORN-GROWING AND CLAY FARMING.

(Continued from page 301.)

IN continuation of the narrative of Mr. Prout's proceedings in reference to this subject we find various matters of great practical importance to the home farmer will appear. To show how these matters have been estimated by the agricultural community we remember that another gentleman, Mr. Middleditch, decided upon farming pursuits in the year 1866, who after several years of commercial pursuits in India was struck with the accounts of Mr.

Prout's agricultural successes. A survey of the clean and beautiful crops at Sawbridgeworth made him an enthusiastic disciple, and he determined to prosecute the system at Blunsden, near Swindon, in North Wiltshire, where he had acquired a farm of 160 acres of heavy clay loam. But this small holding affording inadequate scope he purchased several other farms, making an aggregate of about 600 acres arable and 100 acres of pasture. The Council of the Royal Agricultural Society of England also, being desirous that the striking results of the farming by these two gentlemen should be investigated and made public, instructed Mr. Finlay Dun, of Weston Park, Warwickshire, to prepare a report of these two interesting farms for publication in the Society's Journal, which was published in 1875, 2nd series, vol. xi., part i., No. xxi. We commend this interesting and valuable report to the notice of home farmers generally, but especially to young men, who will find a fund of information narrated in a thoroughly intelligent and practical manner.

As we have previously given Dr. Voelcker's statement of the capability of Mr. Prout's farm, ascertained by analysis of the soil, we will now quote his observations as to the future ability of the land to produce valuable crops upon his present system of farming. He states, "No fear need be entertained that under this system of cultivation and manuring the land will be impoverished, for after twelve or fourteen years, during which I have watched Mr. Prout's farming operations, I can perceive no indications of incipient exhaustion, but, on the contrary, clear evidence of the great improvement which has been effected in once unproductive clay land; nor can I recognise any theoretical grounds for doubting the wonderful improvement which Mr. Prout has achieved in his land at Sawbridgeworth will be a less success in years to come than it has been in the past. I can see no reason why this system of manuring, and an occasional dead summer fallow, in order to give a thorough cleaning to the land, Mr. Prout should not be able to grow Wheat or Barley profitably for an indefinite number of years without injury to the land." This theoretical opinion must be accepted as correct, because it is justified by the practical results of Mr. Prout's management and the profits resulting therefrom; we therefore quote from a tabular statement of profits and prices, which shows "That the yearly profit of £1142 for eleven years, 1868 to 1878, has accrued under a general imperial average for July, August, and September, of 54s. 2d. for Wheat, 36s. 8d. for Barley, and 27s. 5d. for Oats. Prices were for the first seven years of the series, but the profit was less—namely, £1074 per acre; and for the last four years prices were lower, but the profit greater—namely, £1262 per year. The truth is that yield and expenditure have a greater influence upon profit than the price of corn has." This is very necessary to be remembered, especially in times of depression, when it is averred by many that corn will not yield a profit, but that instead of farming arable land their chief attention should be turned towards pasture and grazing land.

It is also important to know by statements up to last year from impartial judges the actual condition of Mr. Prout's farm in the year 1880. On the 23rd of August Mr. Finlay Dun reported as follows in the "Chamber of Agriculture Journal":—"Notwithstanding the limited opportunity for keeping down rubbish this farm is cleaner than most in the neighbourhood, or indeed most elsewhere. Black Grass and wild Oats are the chief weeds; there is very little Twitch, and not any Docks or Thistles. Notwithstanding the scourging corn cultivation, the crops are anything but feeble, knee-broken, or otherwise indicative of exhaustion. I went over Mr. Prout's farm this week. His 436 acres are in a very satisfactory state. His crops are uniformly good. He has 158 acres of Wheat, in about equal proportions of Square-head (a useful, strong-strawed, white-chaffed red Wheat), and of Rivett's Bearded Wheat. Barley reaches 132 acres; as elsewhere, will

probably pay better than Wheat. The dripping season has suited the Black Tartarian Oats, which are a beautiful crop—strong, thick, and well corned, extending to 86 acres, some of the best pieces promising a yield of eight quarters; 16 acres were in tares, partly used green, the remainder yielding about 2 tons an acre of hay, which will be used for the horses cut into chaff, and given with a portion of the 4 acres of Mangolds. Giant Saintfoin in its second year in the worst field of the farm had done remarkably well; machine-cut, and luckily well made, about eighty horse-loads were five weeks ago cleared off 40 acres, and put into two ricks, for which £350 had been bid. Forced along by the summer rains a second cutting has since been well saved, and must be worth £150. Considering that the Saintfoin has had no manure this year, £12 an acre must be regarded as a very satisfactory return."

We have made this quotation as given by an independent observer, because it illustrates that in the nineteenth year of Mr. Prout's farming, while not his best because of the very moderate season of 1880, yet it is not an unfavourable member of the series, its produce not being forced by extra manure, and still betrays no decrease in the long-taxed fertility of the soil; nor is it easy to see anything likely to prevent the continuous corn-cropping under the same rate of manurial dressing, and the same complete and perfect mechanical tillage. Most practical farmers will note that anything like 50s. per acre as an annual dressing, which is necessary to the continuance of the system, is a serious item in the accounts; at the same time, however, it must not be forgotten that the produce of straw per acre when sold is worth this amount in nearly every district in the kingdom, and in some counties considerably more. The home farmer must also remember that he can do what he thinks advisable with his produce, not being hampered with the conditions of a lease, like most of the tenantry in England.

The steam tillage must now be referred to, as it is the most important factor in the system of cultivation both on Mr. Prout's and Mr. Middleditch's farms, for we find that steam has greatly contributed to the success on both these farms, at Sawbridgeworth and Blunsden. It has also enabled the work to be done thoroughly and economically, the land ploughed up early and whilst it was dry, and the seed put in seasonably. The steam tackle which has been used is a pair of Messrs. Fowler & Co.'s fourteen-horse-power engines, with ploughs and cultivator. The perfecting of the steam drill will considerably expedite and economise autumn labour, and render some of the various operations on the farms comparatively independent of horse labour, for it must be remembered that upon farms in general not only much costly labour incurred in root-cultivation and provision for sheep and cattle is entirely absent and comparatively unknown in the system upon which these farms under continuous corn-growing is carried on. With the steam drill which is necessary, made in two sections, each 10 feet wide, capable of sowing 40 acres a day, with both seed and manure, and with drags attached before and behind, the steam cultivator may be considered comparatively perfect. One of the greatest advantages attending the continuous growth of corn must not be overlooked, for under a close system of cropping, whether of corn or other crops, there is no time for Couch and weeds to accumulate in the land. This we have found in our own farming for many years past, although worked out only by horse power; yet we found that under a careful mode of forking-out Couch between the sowings of various crops the land became extremely clean, although we farmed on mixed soils, some of which being sandy loam very quickly would become foul and weedy under any of the ordinary systems of culture without the aid of steam power and autumn cultivation.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The horse labour on the farm is now so pressing that it is rather difficult to say which should be done first. In case the most desirable work should be hindered by a spell of wet days the lea ground after Clover will always be fit for ploughing and pressing. We suggest that sowing Trifolium, Rye, Vetches, winter Oats, and Beans be finished as soon as possible. The best seedtime for Wheat on the hill farms and heavy tillage farms has now arrived, but upon the mixed soils and vale farms the best time will be between the 20th of October and the 14th of November. Autumn fallowing has been better done in most cases than in some previous seasons, and where the tillage has brought the couch and rubbish to the surface, and the weather unfavourable for burning, we recommend that it should be carted away to a heap to become fit for earthing the cattle boxes or for laying out upon pasture land as a dressing in lieu of dung. It often proves equally valuable for such a purpose as dung itself, partly on account of the earthy materials contained in it as well as for the vegetable substances in decay. We prefer sowing Wheat after the presser, or otherwise employing a

drill-presser whereby the seed falls into the press grooves, instead of drilling the seed, especially upon lea ground; for where the ground is properly pressed and seeded it can be horse-hoed or hand-hoed in the spring. The question of distance between the rows in drilling is important, and we prefer under ordinary cultivation the 10-inch space; but on good land in high condition we think 12 inches the best distance, as the straw will generally grow stiffer and not be so likely to go down before harvest. Besides, on some heavy soils, if the season should be adverse and the Wheat plant in the spring becomes weak and the land weedy, the horse hoe can be applied and worked at a depth which will move the soil well between the rows. This matter is often the only way to rally and improve the growth of the plant, a horse-hoeing being frequently equal in effect to a dressing of 1 cwt. of nitrate of soda per acre.

Hand Labour.—Spreading and filling dung will be going on, also hedge-trimming, and upon the flat-lying strong soils the water-furrowing after the Wheat is sown is a very important matter, taking care that they be made out several inches deeper than the land furrows; this is essential, even after the land is perfectly pipe-drained, in order that the surface may be freed of superfluous water as quickly as possible. Upon the home farm the underwood in the coppices and hedgerows should now be cut and made into hurdles both for use and for sale, as they are much sought for by flockmasters for folding their sheep. In case of land coming to hand on the estate which requires draining it is now a good time to commence the work, as the autumn rains will soon show the wettest parts of the land; but in any case test holes should be dug to ascertain the nature and variations of the subsoil before commencing the work.

Live Stock.—The purchase of sheep for the winter feeding of roots still continues. The great fair for the sale of Hampshire and Wiltshire down sheep will be held at Weyhill in North Hants on the 10th inst. The great fair for the sale of the horned Dorset and Somerset will be held at Appleshaw near Weyhill a few days previously—namely, from the 7th to the 9th inst. This is called a show fair, the animals being exhibited in the grass plots instead of being penned close within hurdles, as usual at other fairs, and the ewes being forward in lamb it is better for them. Much business is, however, done on the farms where these horned sheep are reared in the counties of Dorset and Somerset, the animals being purchased at home and driven direct from their native pastures to the home and southern counties, where they are kept in large numbers and furnish early lambs for the London market. It is now a good time to purchase bullocks for box-feeding, as the Cabbage and early roots and Carrots are now ready for use; but instead of buying cattle only in store condition we prefer to take up animals about half fat, or just beneath the butcher's quality. Such stock bought now and well fed, with a moderate allowance of cut roots mixed with cake and bean meal, will pay better and be ready sooner in the spring than poor stock when bought in. In the southern and eastern counties Devon and Hereford cattle are preferred; in the northern and midland districts Aberdeens and Shorthorns prevail. All of these, especially if pure-bred, yield a fair profit for about twenty weeks' feeding. It is, however, preferred by some farmers, and we also approve it, to buy in good short-horned cows with calf at foot, and feed—instead of fattening bullocks—and either sell the milk or rear the calves for veal. In either case if the cows are kept at the same cost as a fattening bullock the well-bred stock of Shorthorns will fatten well during the milking period, and whether milk is sold or veal made it matters not—the important point is good feeding and careful management. All the young cattle, both calves and yearlings, should now as the nights get longer be accommodated with a dry pasture or paddock at night time, where they may also receive their allowance of cotton cake and meal in troughs mixed with cut roots or Cabbage. This will keep them in condition and probably avoid the disease called quarter-ill. Farm horses will in many instances be foddered with young Clover cut up, for we find both young and old Clover grown fit for mowing since the late rains in various localities.

VARIETIES.

CANARIES BECOMING BLIND.—I have four Canaries each blind with one eye, none of them very old, and one this year's bird. The eye appears slowly to shrink away. I am afraid there is no cure after they have become blind, but I should be glad to know the reason, and if I can do anything to prevent it. I feed my birds on Canary seed, rape, millet, broken groats, and a little hemp. One bird I have given away is blind with both eyes. These birds do not all belong to the same family.—E. M. S.

FARM PRODUCE IN 1800.—The following note extracted from a "Whittlesey Farmer's Diary" has been sent to us by a correspondent—"1800, July 7th, Wheat was £7 7s. per quarter, beef 9s. 6d. per stone, mutton 8d. per lb., pork 9s. 4d. per stone, Barley £4 4s. per quarter, flour 5s. per stone. 1802, July 15th, a frost—ice as thick as a shilling."

— "ELECTRICITY," says a daily paper, "is gradually finding its

way, in some shape or other, into nearly all the chief industries, its latest utilisation being in the production of cheap alcohol from Beetroot. The current is passed through the crude spirit obtained by the distillation of the Beets, and the result is the dispersion of water by the liberation of hydrogen in electrolysis. Probably some of the spirit thus procured will be used for fortifying wines and adulterating brandies; but alcohol is now used to such an extent in the arts that the process will probably be developed extensively, and its discovery may lead to the extended cultivation of the Beetroot for other purposes than cattle-feeding, sugar-making, and dye-stuffs. The cultivation pays well in Germany and France, and it might possibly be found profitable in this country."

— **THE HARVEST IN MANITOBA.**—The correspondent of the *Daily News* sent the following cablegram from Montreal last Friday—"The harvest in Manitoba is very abundant. The average yield of grain is extraordinarily high. The average of Wheat per acre is twenty-eight bushels, or ten bushels higher than the highest average ever reached in Minnesota, which is the best Wheat-growing State."

— **AMERICAN FARMS.**—In an interesting work on American farming recently published, the author, Mr. Finlay Dun, directs attention to the diminishing size of the farms in the United States, the official returns showing that while in 1860 the farms averaged 190 acres only, the average fell in 1870 to 153 acres, and it is still diminishing. The farms in the New England States are, it appears, under 100 acres. The largest holdings are in California.

— **FARMING IN NEW ZEALAND.**—A correspondent writes from Nelson to a contemporary as follows:—"Most of the pamphlets written to promote emigration dwell largely upon the productiveness of the soil, but what is the use of large crops if there is either no market for them or the price offered is less than their cost? I know a farmer who grew some excellent Barley this year, and he cannot get 3s. a bushel for it. The same farmer sold fifty fat sheep for £20. Where is the profit to come from? In the Nelson Auction Rooms last Saturday I saw good cheese sold for 3d. to 4d. per lb. Who would make it for the money? A good fat bullock will fetch from £7 to £8. Thousands of bushels of Oats have changed hands for from 1s. to 1s. 6d. a bushel, though the price is now somewhat better when the unfortunate producer has none to sell. Farming, as a rule, does not pay in New Zealand any better than at home, and with my enlarged experience I would now earnestly recommend a considerable pause before any distressed English agriculturist resolves on the transference of his capital and energy from the English shires to these New Zealand solitudes. I know a good deal of English farmers, having been amongst them all my life, and I know a little about New Zealand farmers, and I have no hesitation in saying which I deem the better off. Only let men at home resolve on doing what they must do here in order to live—put their own shoulders to the wheel somewhat more, and put the drag on their household expenditure a good deal more—and a measure of calm enjoyment of life largely exceeding that to be secured either in Australia or Canada will be ensured."

— **LARGE CARGO OF AUSTRALIAN MEAT.**—About 150 tons of frozen meat, consisting of the cargo cases of more than three thousand sheep, arrived from Australia on Monday at Plymouth in the *Orient*. This was the full quantity that the vessel could accommodate. The meat was preserved by the refrigerating machinery patented by Mr. Haslam of Derby, and it is stated that the system has proved very successful.



ENTRIES AND PRIZE MONEY.

VARIOUS methods have from time to time been tried by the committees of poultry shows to meet cases where the entries in a class are too few to pay the prize money. Some schedules announce that if there are less than a certain number of entries the first prize will be withheld, others that in the like event first

prize only will be awarded. The Committee of the Hemel-Hempstead Show, which was held last week, adopted the somewhat sweeping rule, that if in any class there are less than ten entries that class shall be expunged from the list and the entry fees returned.

We think any rule of this kind objectionable, and that adopted at Hemel-Hempstead will probably be found to be detrimental in the long-run to the interests of the Show. An exhibitor who has once had his entry returned is not likely to enter again at that show. He will rather choose some other where he is certain of having his birds exhibited in any event. Accidental circumstances may one season lead to a want of entries in a generally well-filled class, and the fact of the disappointed exhibitors declining to come forward the next season will again cause a dearth of entries.

The rule in question bears hardly also upon visitors to the Show coming from a distance and finding that their favourite breed has been altogether or in part removed from the list. The Dark Brahma fanciers, for instance, who found that there were no cockerels exhibited in consequence of there having been only five entries, must have had a feeling that the inspection of even five cockerels would have given them a better idea as to how the youngsters were likely to turn out this year than the perusal of the statement in the catalogue, "Five entries—removed from list."

The general question is a difficult one to deal with, but upon the whole we think committees would find it to their advantage to omit any rule of this sort, and, framing their classification upon their past experience, rely upon the excess of entries in one class making up for the deficiency in another. This would generally be found to be so. Take the Brahmas at Hemel-Hempstead as an example. There were in the three classes which remained forty-four entries. If to these we add the five returned entries in the dark cockerel class we get a total of forty-nine entries, or an average of twelve and a quarter over the four classes. If we extend the average system to the thirty-six poultry classes, we find that there were 364 entries catalogued, which with thirty returned entries—representing seven expunged classes—gives a total of 394 entries, or an average of almost eleven entries per class. It is true that the return of those thirty entries enabled the Committee to effect a saving in prize money and pen hire of about £15, but, if our view be correct, such a saving is dearly bought.

If it be absolutely necessary to introduce such a rule into a schedule, we think the form which provides for only first prize being awarded is the least objectionable of those which we have seen. The withholding of first prize, except for want of merit, is a course which has the practical effect of much lessening the honour of winning. The fact that most exhibitors think more of the honour of winning a prize than of the amount of the prize money, leads us to suggest that a rule might with advantage be adopted, that if there were less than a certain number of entries in any class the prizes would be only one-half the amount stated in the schedule. This would still leave to the exhibitors the honour of winning and a fair proportion of the prize money, and would relieve the committee from a part of the burden of finding prize money.

What may be termed the co-operative principle has in some few cases been adopted. By this plan the entry fees, or a part of them in each class, are offered in certain proportions as prizes in that class. We do not know what amount of success has attended this experiment, but we hardly think it likely to succeed generally. It has too much of the gambling character about it to be acceptable to most fanciers. A rule such as we have suggested would, we think, effect all that is desired by exhibitors and committee men, and still leave sufficient certainty as to the amount of the prizes.

POULTRY NOTES.

A MOST successful show of poultry and Pigeons was held on Thursday in last week at Newnham in Gloucestershire. About 120 pens of poultry appeared, and nearly 300 of Pigeons—a wonderful entry considering the moderate prizes offered. The Jacobin, Turbit, Tumbler, and Dragoon classes were specially strong. Mr. O. E. Cresswell was the Judge.

THE uncertainty of English law is proverbial; still we were a little surprised at the legal opinions lately obtained by the Poultry Club concerning owners bidding for their own birds at exhibition auctions. It seems in the opinion of two eminent counsel that unless an auction sale is advertised as "without reserve" owners can bid for and buy-in their own birds equally in open and in selling classes. This opinion is contrary to more than one County Court decision. So much corruption has at various shows been

the result of this buying-in of selling-class birds by their owners, that should this opinion prove to be really the law we trust that selling classes will promptly be abolished at all well-managed shows, or that at least a carefully worded rule will be introduced into schedules to prevent such buying-in. To owners openly bidding for their own birds in open classes we never could see any objection, but the Poultry Club will do good service to the cause of honesty if it withholds its support from all shows where it is possible for dishonourable traffic to be carried on through selling classes.

THE same opinion raises a somewhat awkward question as to whether it may not legally be in the power of exhibitors to withdraw their birds from sale during a show.

WE have seen late broods of Turkeys suffering much from rheumatism of the hock joints. Some of our own (cooped too long on grass we believe) suffered to such an extent that their legs became completely bowed and distorted, and they could hardly walk. On removal to a dry house where all can perch they have completely recovered, and their legs are again perfectly strong and straight. This may be a hint to breeders of late Turkeys. It is only another instance of a fact upon which we have often remarked, that with young Turkeys as long as there is breath there is hope, not only of their living, but of their turning out fine and healthy birds.

WE remarked some weeks ago that our ducklings, and those of neighbours too, were suffering from leg-weakness and apparent convulsions, from which many died. We have since discovered that the leg-weakness was the sole malady, and is easily curable. The convulsions were only the ineffectual efforts of the poor little things to get upon their legs again, and their repeated struggles exhausted and killed them. We shut our own up in small dry pens on straw where they had little room to roll about, and in a week all the survivors were completely cured. Those which thus suffered in our flock were all Pekins.

SPEAKING of Pekins we cannot but remark that they are most disappointing birds on the table. As layers they are certainly unrivalled, but their size is more apparent than real, as the scales soon show, and for table Ducks we intend to return to old-fashioned Rouens and Aylesburys.—C.

OUR LETTER BOX.

Pekin Ducks (*Woolhampton*).—You will find an article on this breed in our number for March 4th, 1880 (vol. xxxviii., page 188), and some further notes in the number for July 8th of the same year (vol. i., new series, page 40). See also the above note. They are useful birds for laying.

Ring Doves (*N. C.*).—The Ring Dove is the Wood Pigeon or Cushat, and is perfectly hardy. Perhaps your question refers to the African Ring Dove (*Columba risorius*), which is somewhat like a Turtle Dove, and is not perfectly hardy in this climate. It must not be kept too warm in winter, but merely sheltered, as if in a shed or dovecote.

Silver-Grey Rabbits (*N. C.*).—You do not say where the Rabbits have been kept. If they are in a damp place where there is not an abundance of fresh air this will account for their dying. A cool orchard house will suit them very well. They require to be kept in a dry airy place.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
1881.	Baromet- er at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		In.	
September and Oct.		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.		
Mon. 26	30.030	61.9	61.4	W.	56.6	70.6	54.4	115.6	53.7	—	
Tues. 27	30.069	58.0	55.9	S.W.	56.7	66.0	47.0	110.0	42.5	—	
Wed. 28	30.191	54.4	52.6	W.	56.0	62.7	47.5	105.	43.4	—	
Thurs. 29	30.318	64.0	51.5	N.	55.1	64.7	44.7	102.4	39.3	—	
Friday 30	30.416	47.1	47.4	N.E.	54.3	64.2	42.4	94.8	37.4	—	
Satur. 1	30.397	47.6	47.4	N.E.	53.6	63.7	43.0	95.4	36.3	—	
	30.295	54.4	51.4	N.E.	53.3	62.8	44.3	106.6	37.8	—	
	30.215	54.0	52.5		55.1	65.0	46.2	104.3	41.5	—	

REMARKS.

25th.—Wet early; fine, bright, warm day.
 26th.—Fine bright day, but with one or two very slight showers in morning.
 27th.—Dull cloudy day.
 28th.—Fine, bright, and pleasant.
 29th.—Fine but rather hazy; dense fog early.
 30th.—Dense fog early; fine bright day.
 1st.—Fine bright day, with cold easterly wind.
 A fine bright week with no measurable quantity of rain, two dense fogs, and some cold easterly wind at the close. Temperature a little above the average, but nearly 5° below that of the preceding week.—G. J. SYMONS.



13th	TH	
14th	F	
15th	S	
16th	SUN	18TH SUNDAY AFTER TRINITY.
17th	M	
18th	TU	
19th	W	Sale of Bulbs at Mr. Stevens' Rooms, Covent Garden.

PEARS FOR WALLS.

NOW that the period of the year is approaching for the planting of fruit trees, and as Pears will naturally receive their fair share of attention, it will not, perhaps, be wasting the space of the Journal by inviting those who are interested in producing fine walls of Pear trees to consider, if the force of modern ideas will permit them to do so, the possible advantages of the old system of culture that our grandfathers adopted with such marked success.

Without finding any serious fault with the fashion of the times, which impels almost everybody to plant trees on precocious stocks with the object of securing quick returns, it is yet worthy of some thought whether it is altogether wise to ignore the advantages of trees on the Pear stock for covering walls. For certain purposes the Quince is undoubtedly a valuable stock for a great number of Pears, but not for all, and in light and moist soils it is, perhaps, especially suitable; it is not surprising that it is used, yet in good sound soil it is not possible that such grand trees can be produced on it as on the Pear stock.

"Once upon a time," say a generation or two ago, the pride and glory of many a fine garden consisted in the splendid and splendidly trained specimens of trees on walls. Many gentlemen and gardeners who have passed the meridian of life will readily call to their recollections walls covered from base to summit with grand trees having branches equidistant from each other and as straight as gun rods, with strips of wall just visible, but not obtrusive between, the said branches being from 30 to 40 feet long and wreathed with fruit from end to end, the produce of each tree being computed by bushels and not by dozens, as is the fashion now-a-days.

Some such trees as those referred to are to be found now, but they are few and far between, and about equally seldom do we find a steady endeavour made to produce such samples of skilful culture and training as were produced by the gardeners of the past. Walls which in those days were furnished so completely and faultlessly, are now in too many instances mere examples of pomological patchwork formed by trees of all forms, half of them worked to death by too early and too heavy cropping, and the remainder miserable apologies for trees as regarded from the standard of the old masters of the ante-bedding and Coleus-growing period that has for the last few years appropriated the intellects and absorbed the "skill" of young men of the present day, and the culture of hardy fruits and outdoor gardening generally appears to have been proportionally neglected.

Puny pyramids on the Quince stock, pinched and root-pruned to accelerate their cropping and shorten their lives, are adapted for certain positions, and under some circumstances may be of temporary service. French cordons at different angles, and in grotesque shapes, may please the novelty-seeker, and some trees of the modern type well grown may be and are useful; but that they should drive the true old English-trained trees from English gardens is at least undesirable. While it would be obviously unwise to refuse to adopt a new system possessing some points of excellence, it does not follow that it should be carried out to the extent of annihilating what is good of older methods.

No one having experience on the subject can say that garden walls are, as a rule, covered as well in 1881 as they were in 1841. "The seasons have altered," some may say, "and Peach trees must have glass now." Granting even all that, which is, perhaps, granting too much, the objection has no force as applied to Pear trees; yet Pear walls are certainly not what they once were, and is not the great or initial cause of this the custom that has become established of planting trees on Quince stocks almost exclusively? If not, what is the cause?

Partly in consequence of much that has been written in the press, and one writer parodying another, and partly from taking catalogue guidance, which is necessarily brief even if some of it is good, it would almost seem as if the majority of young gardeners had forgotten, if they ever knew, that Pear trees will thrive on Pear stocks! Let me remind them that they will do so, and let me also say that on no other stock can such grand trees be grown and walls satisfactorily furnished.

Let gentlemen and gardeners who have new and lofty walls to cover with Pears, seriously consider the advisability of planting healthy trees on the Pear stock 24 or 30 feet apart according to the nature of the soil, and devote to these trees the attention that is requisite for producing superior specimens, and they will have fine fruits in a few years, and will leave evidence of their skill and abundance of fruit for future generations. In the meantime the spaces can be occupied with subsidiary cordon trees on the Quince, that will give immediate produce and wear out their little lives before the true old English trees have arrived at maturity. A wall of diagonal cordons, it is true, is attractive, but it appears to me that the great mistake that is made generally is planting one tree each of as many "cordons" as the wall will accommodate, and the results are, so far as I have seen, much too little fruit of the really first-class Pears, and too much of varieties of less dessert merit. With fine trees of the standard varieties on Pear stocks there is an abundance of fruit for use, and a surplus for friends or the market. These remarks are not so much directed to amateur fruit-fanciers as to those whose chief duty it is to maintain a large and long supply of excellent produce, and at the same time restore what is almost a lost feature of many fine gardens—noble wall trees.

The tendency to Frenchify English gardens is rather too pronounced, and especially as the result in nine cases out of ten is not good French but bad. Instead of bad French, then, I plead for a return to good old English in the culture and training of Pear trees on walls. Are there not readers who share in this desire, and who at the same time are

able and willing to say how the work should be done?—
JOHN BULL.

PRIMROSES FROM SEED—PRIMULA CAPITATA.

THE same class of plants requires different treatment in different soils, and I find that in strong retentive soil nearly all the Primrose tribe succeed best when treated as biennials. In such soils the rootstocks and crowns become clubbed together in such a compact mass that successful division is hardly possible. When seed of the previous year is sown in early spring good flowering plants are ready for the next spring and are at their best in their second spring, after which they die off or flower badly, and are not worth the room they take. Some of them, however, grow so coarse as to be almost past flowering at two years old, and a better plan is to sow the seed in June as soon as ripe. These plants will be rather small in their first spring, but in the second year will be better than older plants.

What I have said applies not only to the coloured varieties of *Primula acaulis* and *Primula elatior*, the old garden Primrose and *Polyanthus*, but also to the Alpine Auricula and to most of the stronger species of Alpine, Himalayan, and Japanese Primrose. *Primula cortusoides* and *P. involuerata* and some others succeed well when divided, so does *P. farinosa* if care is taken to plant it deep in the soil, otherwise it invariably pushes itself out of the ground and so perishes. In its native place the plant seems to die from this cause at the age of two or three years.

Amongst the Primroses which do well the first and second years from seed, but deteriorate after division, I may mention *P. denticulata*, *P. cashmeriana*, *P. rosea*, and *P. capitata*. With the last-named, which is a comparatively recent introduction, I have been so successful that a description of my treatment may be interesting to those who wish to grow it. Early in the spring of 1880 I obtained three or four plants, probably seedlings raised in 1879. These began to flower about the end of May, and in a month there was ripe seed. I sowed some at once in a shallow seed pan, which I put into a cold frame to protect it from the splashing of heavy rain, and in a week the soil was covered with young plants. Their growth was very slow at first, but I transplanted them into shallow pans as soon as they were large enough to handle, and again as often as their growth required it. They were wintered in cold frames or a cool greenhouse, and grown on without ever losing their leaves, requiring no attention but transplanting when they became crowded.

At the end of March I had upwards of a thousand healthy little plants, measuring from 1 inch to 2 inches across. From this time they grew rapidly. Many were planted out in different situations and aspects; and I find that, whilst they do best in moist soil and an open situation on rockeries, they fail nowhere. They began to flower about the end of June, when just a year old, and have continued to grow and flower ever since. Some of them have now five or six umbels of flowers and as many separate crowns. Others, perhaps one-fifth of the whole, have perished in the effort of multiplying their crowns, the crowns and rootstock having clubbed together in a hard lump.

A second sowing from the same seed made in March this year came up slowly and sparingly; but some of the plants are already flowering. These will give me more trouble to winter than smaller plants would do, but will probably flower all through the spring. Of the original plants, three in number, I divided one which had four crowns into four plants, which I potted singly. All of these died but one, and that never made a good plant. The other two old plants I left out on my rockery; they lived through the winter and tried to keep their leaves, but the collar of the plants decayed in early spring and they were lost. I may say, in conclusion, that though my garden is well stocked with hardy plants of all kinds, nothing attracts more admiration than my border edgings of *Primula capitata*, which now, on the 3rd of October, are still fresh and gay. The colour of the flowers varies from lavender to dark violet. Before the last flowers on the umbel are open the seed on the earliest flowers of it is ripe; but owing to the ungenial August seed has not been produced very freely this year.—C. WOLLEY DOD.

THE USE OF FIRE HEAT FOR GRAPES.

I AM much obliged to your correspondent "SINGLE-HANDED" for his perfectly disinterested remarks in my favour, for I have not the least idea who he is; but he will excuse me saying that he is hardly correct in his surmises that I rob Peter to pay Paul by burning coal in autumn to make up for lost time by low temperatures in spring. I think I had better state the dates of the starting and finishing of some of our crops that afford a fair criterion in

the matter, and then your readers can judge for themselves whether or not the crops are longer in ripening than those which are treated to high temperatures. I cut the remainder of our late Grapes about the end of February for storage in the fruit-room, and started the Vines at the beginning of April, but the buds were swelling for two weeks previously. They grew quickly and were in flower the first week in May, when the nights were cold and frosty, so that the temperature fell low at nights, the fire being allowed to die out in the afternoons. The day heat rarely exceeded 80° or 85° maximum during the summer, and the Grapes were nearly all coloured black at the time of the Edinburgh Show, as my exhibit showed, but they were not ripe enough to eat. By the end of September, however, they were ripe generally, and since that period have been kept cool and dry. The Hamburgs—a late house—were allowed to come on about the same time; and as the crop is used in October when company is at the Hall and at the pheasant-shooting in November, fire is rarely employed at all during the season, and they are ripe at the beginning of October. We have been cutting them for a week. The Muscats were started at the middle of February, and are quite ripe now (October 6th), but earlier bunches were cut ripe some weeks ago. A second Hamburg house started at the 1st of January produced ripe fruit the first week in July at the warmest end of the house, and at the coolest end two weeks later. The spring was very cold and unfavourable, and during the early stages of growth the night temperature was often very low, and continually so when the Vines were in flower—frequently below 50°.

I treat Peaches just the same as Vines, subjecting them to a proportionately low temperature, that in early houses frequently falling to 35° when the trees are in flower, and no attempt being made to keep them above 40°. From a Royal George Peach started last January 1st two and a half dozen ripe Peaches were gathered and sent to London on June 13th; and from a Victoria Nectarine at the far end of the house, where there is a coil of hot-water pipes less, the first dish was gathered July 16th. The Victoria is a late kind. These trees were not hurried in the least, and these two trees bore sixty dozen fruits together. Black Prince Strawberries introduced into heat the second week in December produced ripe fruit the first week of March, and the fruit was ripe in quantity by the middle of that month. Madame Hericart de Thury was about ten days later. There was no hurrying here either. My theory is that low night temperatures in the early stages of growth do not retard maturity, or at least very little. I make the most of the daylight and the sunshine, but I do not practise higher day temperatures than other people. With regard to the statement that Grapes cannot be ripened to perfection "so late as the end of September or October," how about Grapes ripened at the new year? I have never tried to ripen our late Grapes before October, and they always finish well and keep well, and when I have had any surplus fruit to dispose of I could always obtain the highest price for it. My neighbour, Mr. Batley of Wentworth Castle, ripens his Alicantes later than we do, and his crop never fails to ripen or to keep. In April one year he was awarded the Royal Horticultural Society's first-class certificate for his Grapes, and he afterwards sold the same bunches for 20s. per pound in Covent Garden! He is the best grower and keeper of late Grapes I know. It is not so long since he received 15s. per pound for his Alicantes some time after the new year, and I have received nearly as much frequently. Mr. Batley's Grapes have been fruited for some dozen years or thereabout and have not yet missed a crop, and I never remember them being ripe at the end of September in any season.—J. SIMPSON, *Wortley*.

P.S.—I find on comparing notes with the foreman that I am slightly in error about the Peach house, which was closed on the 14th of December and began to be fired during the day in January. The other dates are correct. I may also add that I advocate low temperatures both on the score of economy of fuel, which in my case at least is no fiction, and the health of the Vines. I may say that we rarely ever find a shanked berry in any of our vineries. I never scrape, paint, nor wash the Vines, and I do not think anyone could show a cleaner bill of health. Spider and thrips will never be troublesome under low temperatures. May I ask your correspondents if they can point to any spot in the world where Vines thrive well naturally where the mean night temperatures approach those recommended under glass in this country by the advocates of high temperatures?—J. S.

VIOLETS.—How well the London, Russian Superb, and Floribunda Violets are blooming this autumn! Victoria Regina, on the other hand, only produces very few blooms; indeed I am afraid that this fine Violet cannot be classed amongst the autumnal bloomers, at least this I yearly find to be its character here. It is,

however, splendid in spring. The new double De Parme has not bloomed this autumn as yet.—GEO. W. BOOTHBY.

STANDARD ROSES.

ONE of your correspondents, "H.," in last week's issue mentions a fine standard Rose at Redhill, and asks some questions as to stocks and other matters. I hardly dare reply on such a point, and can only say that if you receive replies from a source better qualified, commit mine to that sanctum of an editor, "the bourse from which no" manuscript "returns." The size of standard Rose trees depends on several matters, and, as I think, grand growth of standards is only obtained when there is perfect accord between stock, scion, situation, and soil. When these all agree it is quite possible to have such a tree as your correspondent describes, and, when obtained, I grant its beauty; but in an ordinary way and in certain localities I have hardly a word to say in favour of the mops.

What, then, are the conditions that go to make a grand standard Rose tree? First, the situation must not be too exposed to rough winds, and the soil must be good—these apply perhaps to all Roses—then a good straight and thick stock must be selected; it should have plenty of small fibrous roots, and the Dog Rose from which it is taken should be free in growth. I do not believe in small stocks for standards. But now comes the question, What Roses budded on this stock will so progress as to furnish a good head and merit the name of tree? Some certainly amongst our best Hybrid Perpetuals will flourish on it, though possibly not so grandly as that mentioned by "H.;" but Charles Lefebvre, Pierre Notting, Abel Grand, John Hopper, Madame C. Joigneaux, will certainly make good trees, and often Marie Baumann, Duke of Edinburgh, La France, and a few others will form very respectable heads. Many of the Teas will also succeed well and be masses of bloom, small, perhaps, but lovely. Gloire de Dijon, however, if allowed, will surely be found grand. But it strikes me that the Rose tree mentioned belongs to neither of these varieties. There is one other kind that seems to me *par excellence* the scion that will furnish on standard Briar such a tree as that which charmed your correspondent, and that kind is the summer Rose. Charles Lawson and Coupe d'Hébé will both make fine heads, and I should never be surprised at seeing trees such as "H." describes when a good Briar is budded with a summer Rose. It has always appeared to me that between the "you do" and the Briar there is a perfect understanding—"you do your part, I'll do mine" sort of contract, which results in success. The main point, as I believe, for growth, is that there should be this thorough agreement between stock and scion—a suitability for each other—which after they have taken each other "for better, for worse," leaves no room for fallings-out. Often have I seen these Roses a mass of bloom, for the summer Roses are truly floriferous, making up for the non-continuance of bloom by its abundance during a short period.

At the present time I have a Charles Lawson standard that disdains any support, standing erect and displaying wondrous beauty until last winter's frost injured its proportions. Its stem must rival in diameter that mentioned by "H.," and the top of the head must be 8 feet from the ground. It is certainly sixteen or seventeen years old, and a hundred blooms must have been cut from it in some seasons. When I came to my present abode some fourteen years ago I found a standard at the top of a bank. I do not know the Rose. For exhibition purposes it is valueless, but I have allowed this tree to grow as it pleased. The head must be 6 or 7 feet through, and it is very beautiful from the quantity of flowers produced. It also is a summer Rose.

To obtain any sort of Rose in perfection the stock must suit the scion, and the latter the stock; and further, the stock must suit the soil. In hungry soil the Manetti and the seedling Briar will make a head, where the standard Briar, not seedling, quickly pines away. Some people say, "I have tried Roses and they never succeed here;" but it is unfair to say this until they have tried the various stocks. A few Roses on their own roots produce better results than on any stock. Some years ago I recollect there was a "stock" election, and if I am right the result was a qualified one depending on the soil, but Manetti obtained the greatest number of votes.

Perhaps now "H." has referred to this matter he will kindly take the trouble to enlighten us a little further, and let us know, if possible, the stock, the name of the scion, and something of the soil. It will interest some of your readers.—Y. B. A. Z.

BOILERS v. WATER.

IN his interesting article "Boilers v. Water," Mr. J. Ollerhead asks the question "How are we to prevent the furring of boilers?"

This is a serious consideration, and of great importance to all who are interested in heating glass structures; and I hope those who have had this difficulty to contend with will be able to recommend some remedy, as, doubtless, many who are situated in districts where the water is hard have found it necessary to try various methods to prevent furring. When the water used is hard the sides and top of the boiler soon become incrustated with a hard substance that accumulates until it seriously interferes with its heating capabilities. This, when possible, should be chipped off at regular intervals. With most boilers used for horticultural purposes this is impracticable. The furring may, however, be greatly checked, and in some cases prevented, by the regular use of common soda crystals. I have frequently recommended them to be dissolved in the water for feeding large boilers used for driving machinery, and in the last case the person in charge of two large ones informed me recently that he was now using soda to prevent incrustation, and found it very beneficial.—J. H. S.

DRACOCEPHALUM SPECIOSUM.

A PRETTY hardy plant, which in the southern counties prolongs its flowering period into October, is *Dracocephalum speciosum*, and as flowers become scarcer in the borders every occupant that

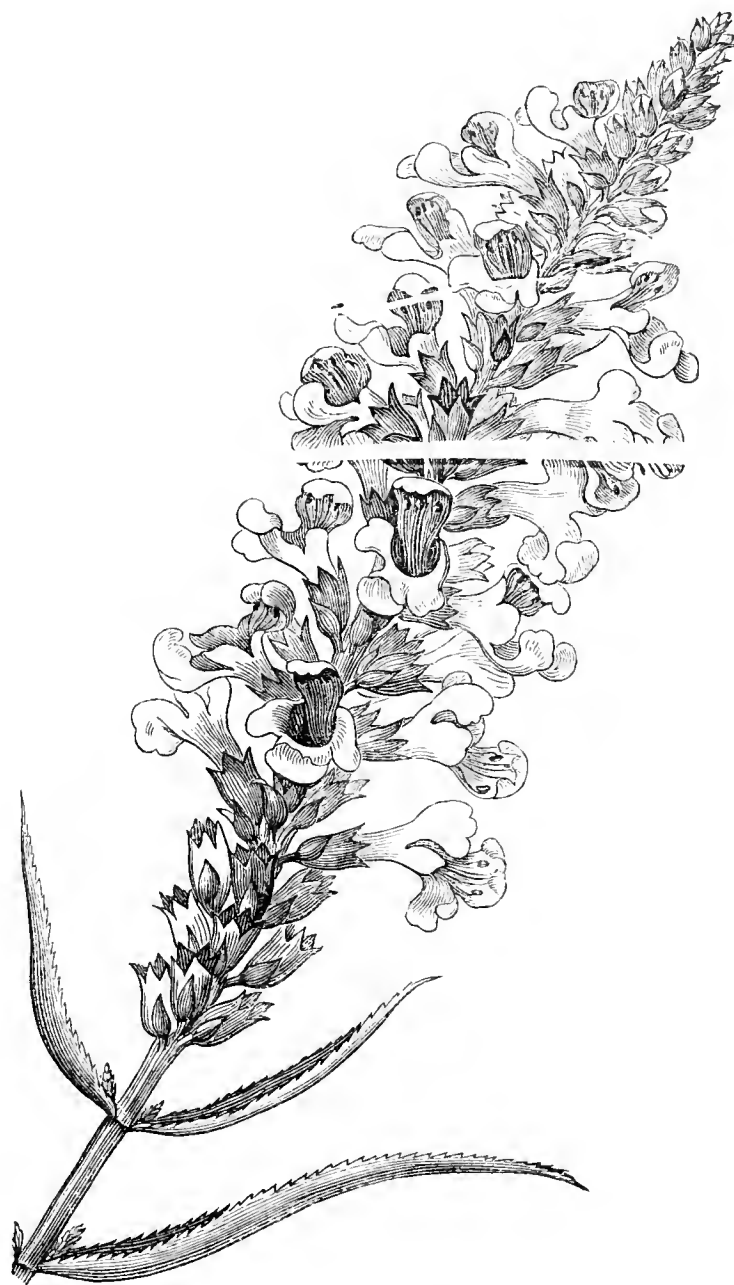


Fig. 54.—*Dracocephalum speciosum*.

continues in any degree bright and attractive seems invested with far more interest than it would earlier in the year. In late September, and October too, there is such a preponderance of the Compositæ that any distinct variation from the uniform floral characters marking that great family is especially welcome. This plant is really no trouble to grow, succeeding in ordinary border soil provided there be not too much stagnant moisture about its roots. The colour of the flowers is bright rosy purple, and stems are usually about 2 feet high, closely set with blooms upon the upper portion.

The woodcut (fig. 54) showing a spike of flowers and the upper

narrow leaves, was prepared from a specimen furnished by Mr. Parker of Tooting, where *D. speciosum* and several other species thrive particularly well.

RAITT'S STRAWBERRY BOXES.

By the courtesy of Mr. Raitt, who wrote those admirable articles in the Journal on Strawberry culture, I have received a sample box such as he packs his fruit in, and it is evident, as he says, that the fruit will travel hundreds of miles in such carefully contrived packages. However, the weight of woodwork is a little over a quarter of a hundredweight, and the nett weight of fruit it will contain only about a half hundredweight; the tare is therefore about 33 per cent. of the gross weight. This is a drawback where horse carriage is concerned, although only a matter of a few shillings per ton by rail. The "crate" is 26 inches long, 17 inches wide, and 12 inches deep. It holds three layers of little quart boxes without lids, the layers being separated by trays. It appears to be neat, compact, and admirable, not much more expensive than our punnet system, and certainly less likely to bruise the fruits. Has anyone else seen a better plan? — FRAGARIA.

HARDY PLANTS—PREPARING THE BORDERS.

BORDERS of mixed hardy flowers are now becoming fashionable, and there is much anxiety to obtain that practical knowledge which is so essential to successful cultivation. I have made these borders and plants a part of ordinary garden work for several years back, and I think that the details of the management may be useful to many readers who may wish to grow the best hardy flowers. Be it understood, however, that I am not a very great admirer of this style of flower gardening. I occupy the position of a gardener whose aim it is to make the most of the gardens I have under my charge, and therefore try my utmost, as far as means permit, to make the gardens interesting, varied, and enjoyable.

It used to be the invariable practice of gardening writers when treating on the culture of a plant to begin by detailing its history from its selection as a cutting, the potsherds, washing the pots, the mode of using the potsherds as drainage, how to procure and prepare the soil, how to fill the pot with soil, and the exact depth, how to insert the cutting, and so on through every item of detail in the history of the plant. It was a good old system, and I will follow it in the present case, and tell in the first place about the border and how to prepare it, and on the foundation thus laid give as much practical information as I can.

A truism in the pursuit of horticulture in all its branches is the impossibility of doing anything too well, provided the work is followed intelligently. This is as true in reference to the preparation of borders for the growth of these plants as to anything else. Therefore, if I had a border of bad soil, subsoil especially, to deal with, and could obtain means of doing so, I should remove much or all of what was really bad, and introduce good soil in its place. In the majority of cases such a proceeding would be impossible. A new Vine border is a difficult operation with many of us, and new flower borders are not to be thought of. I remember once commencing to renovate a border on which Cabbages would not thrive. Within easy wheeling distance was a large heap of decayed rubbish, quite beneath everyday attention. The border was trenched deeply, some of the worst of the soil removed, and the heap of rubbish made to fill the vacancy, where it proved of no slight benefit. Without the application of any manure *Gladiolus* attained to the height of 6 feet, while *Delphiniums* became giants—over 9 feet high.

Such measures, however, are not required everywhere. In ordinarily well-cultivated soils nothing more is necessary than a thick dressing of manure, 6 inches in thickness at least, then trenching the ground 2 feet deep. If the subsoil has not been cultivated do not turn it up to the surface, but mix manure with it and loosen the bottom. Many hardy plants, often the most effective, root deeply. The stronger growth of these will well repay the extra work. The manure I prefer is a mixture of material from the cowhouses and old hotbed manure. If possible have this work done in October. In spring, as soon as the ground is dry enough, spread 2 or 3 inches depth of light manure over the entire surface of the border, and point it in from 6 to 9 inches in depth. Any particular flowers, such as *Phloxes*, *Dahlias*, *Hollyhocks*, or *Carnations*, which I like to specially encourage, have in addition a compost of loam and manure, sometimes with chemical manure added, prepared for them. A spadeful of this compost is mixed in the border and the plants placed out in the position thus prepared. A border like the above I find suits plants very well for three years, at which time the whole border should be

emptied and retrenched in the same manner as at first. Many plants require lifting every year, and some become too large if left over two years. The proper way to treat all such is to give them some fresh compost, as I have recommended for *Phloxes*, and replant the divided pieces in what is virtually fresh soil. If by any means the border cannot be retrenched at the time recommended, fresh soil will be required as a surfacing to at least the front of the border in order to keep the border up to the proper level, and also to keep the plants in robust health. But surface dressings are not so good as periodically trenching and manuring the ground. Annually pointing the soil is not good policy.—R. P. BROTHERSTON.

SCRAPS ABOUT FRUIT.

WHEN I penned my last letter on this subject I never anticipated such a general response. The letters published last week show in a marked manner how much latent practical knowledge there is on the subject of fruit, and not less clearly do they show that there is a generous disposition to advance what may be useful when it is known that a record of simple facts is acceptable. Is it possible that any one man could have written a page and a half on fruit, and embodied so much varied and practical information as is contained in the isolated scraps that appeared in your last issue? Several hints there recorded are of great value to me, as I doubt not they are to many others, and I shall look with interest for other odds and ends of fruit experiences that I am sure are too good to be lost. I intend ordering *The Czar Plum*, *Cox's Pomona*, *Ecklinville Seedling*, and *Wormsley Pippin Apples*, and *Baronne de Mello Pear*.—A COUNTRY SURGEON.

JEFFERSON PLUM.—This Plum is known to a great number of people, but those that do not know it should plant it, and they will not be disappointed. The fruit is fine and of splendid quality.

WORCESTER PEARMAIN APPLE.—This will prove a good market variety, more particularly on account of its colour, as that is everything almost in a market fruit. I know growers planting it by the thousand, which is the best test of its value.

THREE GOOD DESSERT APPLES.—An amateur requiring only three varieties of dessert Apples should grow the following, all of them being heavy bearers and of good quality—*Cox's Orange Pippin*, *King of the Pippins*, and *Sturmer Pippin*, the latter keeping until June.

GRAVENSTEIN APPLE.—Gardeners and amateurs who do not grow Gravenstein Apple should procure it this season. It is a splendid culinary Apple, and useful for dessert, the flavour being excellent. Its colour also is very telling on an exhibition table, and the tree is a good grower and bearer.—THE DOCTOR'S FRIEND.

KING OF THE PIPPINS APPLE.—As this is the time when many fruits may be gathered and tested and new kinds planted, I think your "Scraps" on fruits most valuable morsels, and they cannot fail to be highly instructive at the present time. To those in want of a good Apple I would like to recommend them King of the Pippins. Our varieties of Apples here are numerous, but we have none to equal this. I am not meaning this season alone, but am considering its conduct year after year. In the first place it never fails to bear a crop; the fruit are always of a good size, very clean, and as a rule very beautiful. They may be gathered about this time, when they may be used in the kitchen or for dessert, and in any ordinary fruit-room they will remain sound and well flavoured for six months or so.—J. MUIR.

ONE of the most useful Apples is King of the Pippins Apple, the above. It is a certain cropper, but requires liberal treatment to bring the fruits to a good size and form strong wood for the succeeding year's crop. It is useful both for dessert and kitchen use.—B.

WARNER'S KING.—As a midwinter kind nothing need be desired better than this. All our trees are young. Some planted as maidens in the spring of 1880 are bearing a few fruits this year, and there is every promise of the whole of these trees bearing a small crop next year. We shall grow forty trees of this variety for affording the main winter supply of fruit. All the pruning it requires is to stop the ends of the main shoots in August and keep the side growths pinched in.—R. P. B.

MARIE LOUISE PEAR.—I can confirm what your Worcester-shire correspondent says on the subject of stocks for this Pear. Twelve years ago I planted three trees of Marie Louise, two on the Quince and one on the Crab. For the first five years the trees on the Quince gave the most fruit, but they did not grow so healthily as I wished, the ends of the shoots turning black and dying. One of these trees has died and the other is not satisfactory; but the one on the Pear stock is in the best of health, and I am sure has given five times more fruit than the other two on the Quince.—J. E. BELL, *Clifton*.

COX'S POMONA APPLE.—Having seen the inquiry of "F. D.," on page 285 of your Journal, I write to say that I have tested Cox's Pomona carefully as a kitchen Apple in the last fortnight against Small's Admirable, Hawthornden, and other varieties. The verdict is that Pomona is inferior in flavour, although lovely in appearance on the tree.—A KENTISH VICAR.

KESWICK CODLIN APPLE.—Always plant one or more trees of this according to the quantity of early fruit you require. When once the trees commence bearing they never fail to produce a fair crop of fruit. The growth is vigorous and sturdy, and the tree continues healthy and prolific for many years. Preference is sometimes given to Lord Suffield; but excellent as "my Lord" undoubtedly is, he has succumbed to canker, two trees of it being almost dead, while another pair of Keswick Codlin growing close by in the same kind of soil are "pictures of health."—E. LUCKHURST.

FORMAN'S EXCELSIOR STRAWBERRY.—I have had this Strawberry on trial at the Girtford Experimental Garden for three years, and every year has tended to increase my estimate of its value as one of our very finest modern Strawberries. The plant is hardy and a vigorous grower; fruit large and nearly globular, and of a bright scarlet colour; flesh firm. It ripened here this season on the 15th June, about two days later than Keens' Seedling. I shall try "Excelsior" again, and would recommend its being tried under glass.—T. LAXTON, *Bedford*.

It will be well if this variety does not come to be known as the "Winebottle Strawberry." "B. L. S." has certainly put the subject of big fruits in a strong light, and Mr. Boothby's reply will be awaited with interest. Would it not be well if the weight of the fruit could be named? Surely a fruit larger round than a wine bottle would be placed in the scales and a record kept of the result. Strawberry-measuring is not always satisfactory. I measured a fruit of James Veitch last year that girthed 9 inches round the edge, as if measuring a Cockscomb, but when tested with the scales it only weighed $1\frac{1}{2}$ oz., as it was a thin fan-shaped fruit. Let us have the weight, then, of the specimen above referred to.—D. T.

I THANK your correspondent for his remarks last week questioning the accuracy of my statement the previous week, that this Strawberry has measured as much as 11 inches in circumference! I wrote from memory, and fully believed in the truthfulness of what I wrote. Both fruit and plant are everything that could be desired, but the maximum measurement ought to have been given as 9 inches. I think I ought to add that what has been achieved in the past might be accomplished even now. In the "Gardeners' Magazine" for July, 1863, I notice the following description of Strawberry "Refresher"—"Several of the berries weighed $1\frac{1}{2}$ oz. each, and many are 8, 9, and 10 inches in circumference, and one 11 inches."—HENRY BOOTHBY, *Louth, Lincolnshire*.

DYMOND PEACH.—In answer to "A HAMPSHIRE CLERGYMAN" in your Journal of October 6th, page 311, I may say Dymond Peach is a fine variety, said to have been introduced by the late Mr. Veitch of Exeter, and may be had of Messrs. Lucombe, Pince, & Co., Exeter.—J. SEARLE, *Oxford*.

NEWTON'S SEEDLING STRAWBERRY.—My experience of the above variety, which I have grown for several years, and which has invariably produced very plentiful supplies of fruit of good quality, prompts me to offer a few remarks, as I feel convinced that if more generally known it would be much more extensively cultivated than it is at present. This is a very distinct variety both as regards fruit and foliage, is very hardy, and for preserving purposes is not surpassed, if equalled, by any Strawberry that I am acquainted with. As a market gardener's variety I cannot

conceive anything to surpass it, as, owing to the firmness of the fruit, they are not so liable to injury whilst in transit as most sorts are. Another point in favour of this variety is its stout fruitstalks, which, in many instances, hold up the fruit well clear of the ground. It is a medium-sized Strawberry, and does not aspire to the "from 9 to 11 inch in circumference" sorts. I can with confidence recommend it as one of the most serviceable and reliable.—W. W.

USEFUL APPLES.—We have here an orchard tree of King of the Pippins, which for the past seven years has borne full crops of very fine fruit. Another variety which never seems tired of bearing is Dutch Mignonne. The above are both useful, and may be used for the dessert as well as for kitchen purposes. Lord Lennox is also a very reliable variety, and is an excellent market and attractive dessert fruit. Court Pendu Plat, the last of all Apples to blossom, generally produces a fair crop. Cox's Orange Pippin and Ribston—two grand Apples, the former the most to be trusted for a crop—are well worthy of cultivation. Cellini bears heavily here every other year, and is a fairly good Apple. We have here a fine specimen orchard tree of Bess Pool, which is bearing an immense crop of splendid fruit; this is an excellent Apple, but I fancy not one that bears freely until the tree attains a good age.—MID-LINCOLN.

RED WARRINGTON GOOSEBERRY.—Such a valuable bush fruit as this should always be planted extensively in every garden. It is valued here most of all for its delicious ripe fruit, much of which is made into jam, and still more is eaten fresh picked from the bushes at almost every meal during the long time it continues good after it is ripe. Its robust growth is somewhat drooping, but by judicious pruning the bushes become sufficiently erect to keep the fruit from contact with the ground, and they soon become handsome in form, and so large that a single bush yields no inconsiderable quantity of fruit. Plant two or three rows of them side by side, so that the fruit may easily be protected from the ravages of birds, and you will have an abundant supply of late summer fruit that is as much in demand as Strawberries are in their season.—E. L. O.

PEARSON'S PROLIFIC NUT.—I do like a name that means something as this does, for never was the term "prolific" more justly applied to fruit or vegetable than it is to this capital Nut. It forms a handsome tree quickly, its branches are very robust, the foliage large and stout, and the nuts cluster thickly all over the branches every summer, which shows, I think, that its blossom is exceptionally hardy. A neighbour has not more than a quart of Red Filberts off the whole of his trees this year. I have not many more, but then I have bushels of Prolific, and sent a basketful the other day, which ought to induce him to plant some of it; but he is somewhat stubborn, and says he does not think much of those writing fellows.—SUSSEX.

THE DAINTY APPLE.—Can any of your readers give me particulars as to the correct name of the above or the characters of the variety? The fruit is described to me as very beautiful, of moderate size, and regularly streaked with crimson from the eye to the base. It is said to be a culinary variety of fair quality, and ready for use during the present and following month.—X., *Surrey*.

I OBSERVE in your Journal that one of your correspondents regrets Blenheim Orange and Ribston Apples are not now much planted. Another justly recommends Pomona. The demand here is about in proportion as the names are given—Cox's Orange Pippin, Blenheim Orange, Wellington (Dumelow's Seedling), Cox's Pomona, Ribston Pippin, and Warner's King—for the above half-dozen kinds.—C. T., *Slough*.

ROCHEA FALCATA.

ALTHOUGH an old inhabitant of our gardens, and of easy cultivation, yet we seldom meet with this plant in good condition. Why it receives so little attention it is hard to understand, since it is in every way a most useful plant when under proper cultivation. We confidently assert that few plants will more amply repay the gardener for the time and skill bestowed upon it than the one now under notice. It is most useful as a decorative plant during the months of July, August, and September, when its fine large trusses of scarlet blooms, combined with the grey hue of its leaves, render it highly attractive amongst other flowering plants in the cool greenhouse or conservatory.

It is readily propagated by cuttings or leaves at almost any

season of the year. Cuttings may be taken now as follows:—Take the points of the shoots with three or four leaves attached, carefully remove the two lower ones, then cut the base of the cutting cleanly through the lower joint. Procure a number of 2-inch or thumb pots, fill one-third of their depth with broken potsherds, then fill the pots with a compost consisting of two-thirds of pounded brick or potsherds and one-third coarse sand. This being done, place a cutting firmly in the centre of each pot, afterwards giving a good watering, then place them on a shelf near the glass in a cool house. The cuttings must not be shaded, but fully exposed to the sun. Water must also be applied sparingly; indeed, we seldom give any after the first application till they are rooted.

The leaves taken off should be fully exposed to the sun in order to evaporate as much of the superfluous sap as possible. After a few days' exposure they should be laid on the surface of shallow pans previously filled with potsherds and coarse sand, and then placed on a shelf as advised for the cuttings. No water should be given unless they exhibit signs of shrivelling until they are rooted. As soon as the cuttings and leaves are rooted shift them on into 4 and 5-inch pots, in a soil composed of one-third turfy loam and remainder old mortar, brick rubbish, and sand. Give a good watering, and place them on a shelf or stage near the glass, where they may remain till they flower. Like most succulent plants they require but little water, even during active growth, therefore a little discrimination should be exercised in its application. Care should also be taken not to overpot the plants at any period of their growth, otherwise they will not flower satisfactorily.—A SOUTHERN GARDENER.

FRUIT TREES CANKERING AND BEARING.

PERMIT me to call the attention of some of the able and experienced fruit-growers, who help to make "our Journal" such instructive and pleasant reading, that what is most needed to be told to fruit-planters is caution as to sorts of Apples and Pears that canker, and next to this the relative time required to bring the sorts into bearing after planting. Very much loss and discouragement ensues through ignorance on these points. We have abundance of sound guidance as to the qualities of these fruits, but next to nothing on these two subjects of cankering, and a long or short time of coming into bearing after planting.

Irrespective of the cause of canker, of which much may be said of an instructive character, the fact that under precisely the same conditions of climate, soil, and aspect some very fine sorts canker to death, whilst others do not canker at all, speaks eloquently of the need of guidance to new planters. Again, whilst some Apples and Pears come to bearing freely in two, three, four, or five years, others do not do so for many years; and as I have said above, there is little or no guidance to be had in books or otherwise on these important points.

Meantime, let me caution intending planters who have heavy loam or clayey loam soil having a tendency to hold water near the surface, though they may have heavy crops and very large fruit of some sorts, as I have during the last three years; yet let them not plant such otherwise excellent fruits as Louise Bonne or Marie Louise Pears as pyramids, nor Cox's Orange Pippin, Lord Burghley, or Ribston Pippin Apples, for canker will destroy them.—S. S.

FLORISTS' FLOWERS—OCTOBER.

THE present month is one in which all growers of florists' flowers are preparing for the on-coming winter; for although the objects of their care are hardy that does not imply that they can stand any kind of treatment, and the fact of their being grown in pots takes away somewhat of that capability of standing all weathers which some of them possess. The Picotee, which will brave our hardest winters, as a bed of mine did that of 1880-81, when wintered in pots requires to be carefully watched lest what is called "spot" makes its appearance amongst the collection.

There is one enemy which is more injurious to all florists' flowers than anything else, and that is damp, whether arising from defective drainage, the use of bad soil, or a damp atmosphere in the frame or pit where plants are wintered. We are subject to such vicissitudes of climate in the winter months that sometimes there is a tendency to excite plants into growth, which damp encourages; and then frost or cold winds do the more damage. Moreover, an overdamp soil rots the roots, and of course deprives the plant of its sources of strength. Therefore I would say to all growers of florists' flowers, Above all things take care to guard against damp.

AURICULAS.—These may now be removed into their winter

quarters—i.e., the frames are to be stood facing south instead, as they have been during the summer, facing north. Watering will have to be done more sparingly; and where, as in several collections in the north, glazed pots are used, they have the advantage of keeping the soil somewhat more moist, and thus of preventing the necessity of frequent waterings. The large outer leaves will gradually decay and should be taken off; and by the time that top-dressing is needed (January) there ought to remain just simply a stout heart instead of the large plant there was in the summer. Slugs should be watched for and destroyed, ventilate as much as possible, and avoid coddling. As the nights become colder mats should be in readiness to place over the frames. The plants will stand much frost without injury, but later on it injures the bloom.

CARNATIONS AND PICOTEEES.—Layers ought now to be taken off and potted. It is best to put them singly into small pots. The soil should be a light loam without any mixture of manure, as it is not well for them to be excited into growth, all that is required being that they should be kept in a healthy condition and fill the pots with roots. They should be kept close for a few days and then placed in a similar position to the Auriculas; air to be admitted freely at all times when the weather is fine. Dead leaves should be taken off; and if green fly makes its appearance, as it is apt to do, they should be either brushed off or the frames must be fumigated. Where they are grown in beds, the plants may be placed out and secured by small sticks, as they are apt to be blown about by the winds and loosened. Wet then penetrates the collar of the plant and does considerable damage.

PANSIES.—The same treatment applies to these. If grown in pots they should be wintered in small pots in a light but not too rich soil. Unlike the Carnation and Auricula, they are not at rest during the winter months, and their tender foliage is very enticing to slugs, which should be carefully guarded against, as should also the attacks of green fly. When grown in beds they should be secured by small sticks, and kept clear of weeds.

GLADIOLI.—The smaller roots of these (seedlings and young corms of the named sorts) may now be lifted; and as there is little chance of seed this year the flowering stems of the larger corms may be cut off, as it will hasten the ripening of the corms. The small bulbules, as the French call them, may be kept when sufficiently dry in paper bags with a little dry sand. Towards the end of the month many of the corms which flowered early will be sufficiently ripened to take up. They may be laid out to dry in a cool and airy situation, but not exposed to frost. When dry enough the spawn may be taken off and the roots dried and stored away. There is nothing better than the frame of which I gave a sketch in a former volume of the Journal. The names may be written on the corm, and thus all fear of wrong naming be avoided.

DAHLIAS.—Towards the end of the month it will probably be necessary to lift the roots; but it will depend much on the weather, for if hard frost does not occur they will go on maturing in the ground. When lifted they should be dried off carefully, if possible in a cool vinery, and then stowed away in a dry place free from frost. Single Dahlias, which are now so popular, may be treated in the same way. The recommendation to grow them from seed in the spring is desirable enough for large gardens; but where space is a matter of moment it is better to grow a few named sorts, such as Paragon, Cervantesii, coccinea, &c., and start them again in the spring.

CHRYSANTHEMUMS.—These will now be coming on rapidly: the buds seem to be swelling fast and promise well. Where large flowers are desired disbudding has taken place, but where a goodly number of flowers is desired that may be dispensed with. A spoonful of Clay's fertiliser on the surface of each pot will materially help them now. The plants may now be safely placed under shelter, and will cheer their cultivator during the otherwise (floriculturally) dreary month of November.—D., Deal.

NEW STRAWBERRIES.

THE following amongst the recently introduced Strawberries tried at the Experimental Garden on fairly strong Strawberry soil have proved the most satisfactory—viz., Crown Prince of Germany (Goethe), ripe June 21st; Forman's Excelsior (raised by Mr. Forman of Louth), and Seth Baydon (American), from Messrs. Ellwanger & Barry, both ripe on the 15th June. These are all good growers, and produce fine handsome fruit of rich flavour and first-rate quality. Keens' Seedling ripened on the 13th June. McMahon is a free-bearing Strawberry of good size and high quality. Duncan (American), a useful early sort.

Sharpless (also American), and Dr. Roden's Fair Lady promise well, but were planted too late for a satisfactory test. The best variegated-leaved Strawberry is "Variegated Enchantress" (Dr. Roden), which comes more constantly variegated and with better fruit than the other variegated Strawberries with which I am acquainted.—T. LAXTON, *Bedford*.

THE ROSE ELECTION.

THE thanks of all true rosarians are due to Mr. Hinton for his courteous labours, and I for one congratulate him on their successful results.

The position, however, of a few Roses is rather surprising, notably that of Comtesse de Serenye. Where is that elegance of form and delicacy of complexion which charmed us so much when she made her *début*? The loveliness of the girl has developed into the too great inclination to *embonpoint* (dare I say coarseness?) in the woman, and rarely now is to be seen that "maiden's blush" on her cheeks which was one of the most charming features of her first appearance.

Am I wrong, do you think, in suggesting yearly budding to reproduce her pristine charms? I think not, if we take the character of the votes into consideration. Twenty-four amateurs out of forty-five give her their votes, but of these sixteen seem to mark only fond memories of the past, while of nurserymen twenty-one out of twenty-two vote for her, fourteen placing her in the first twenty-four. Now as nurserymen chiefly look on maiden blooms and amateurs on cut-backs, I fancy there is some reason in what I say, and that Comtesse de Serenye grows somewhat coarse under good feeding. If, then, we are to see her again in the beauty of her girlhood, we must either put the Comtesse upon Banting diet or trust only to maiden blooms.

I wish with Mr. Hinton that positive notice had been taken of "too much alike Roses," for to see forty votes accorded to Ferdinand de Lesseps, while Exposition de Brie numbers only fifteen, speaks of some such unaccountable change of opinion as characterised the political election of 1880. Again, that Prince Camille de Rohan should stand forty-ninth on the list, while La Rosière occupies the undignified position of "wooden spoon," must have disturbed the equanimity of others besides myself.

I wonder, too, what offence poor Xavier Olibo has committed. Try him on the seedling Briar, ye who doubt his excellence; and if you have my experience you will find a Rose vigorous as Dupuy Jamain with the blooming properties of Marie Van Houtte.

I merely write this hoping to see further letters from some far more competent to write on the matter than I am.—H. B. B.

A WEEK IN BELGIUM.

[THE THIRD DAY.]

THIS may be described as a day in the country, and a most pleasant one it proved; profitable, too, it certainly ought to have been, as it was spent with one of the most experienced men in Europe in the particular branch of horticulture with which he is specially identified.

As has been stated, Mr. Van Geert's nursery at Antwerp has diminished in size owing to the steady growth of the town; but as this was foreseen some years ago ample provision was made to meet the anticipated change, and a country nursery was established in what is undoubtedly one of the healthiest parts of the kingdom, the land being well drained, the soil sandy yet good, and the air pure.

Calmthout was not only judiciously selected on account of its natural advantages and ready access by rail—the station being within three minutes' walk from the nursery—but the ground was so disposed that utility and convenience were combined with artistic effect, and the nursery is of its kind a model one. It has been previously described in this Journal, but a second visit to a place which the first did not render quite familiar is often needed, always enjoyable, and seldom fails to be instructive where there is anything to be learned, as there is at the establishment in question. There is no glass, except in the windows of the villa. This building was commenced for a small office. Madame thought it would be more useful if a cooking kitchen was attached, the family thought it would be still further improved if an additional room were added, and then it was considered a pity that the walls should not be taken high enough for bedrooms; and so the place grew to its present dimensions, and it now forms the health sanatorium for family or friends who require a brief sojourn in a salubrious district. Perhaps the proprietor did not at the first see the necessity for such an erection, but the family instincts proved sound, and the only fault of the place now is that it is not large enough. The moral of this is, Do not despise the advice of a good

wife, nor treat with contumely the suggestions of the olive branches.

But my friend William Taylor, with his stern utilitarianism, will be reminding me that this is "not gardening." True, it is not, but it is in a rather more direct manner than I wish "leading up to it." I wanted a change *from* gardening when I left England, and I happened to suggest a few weeks ago that some of my readers have enough if not too much of it; hence I said as little about "gardening" as possible, and I have had more than sufficient testimony that the change of subject I ventured to introduce was specially acceptable. I am, however, driven to one phase of gardening now, but it is at any rate a change from clipping *Mentha* and plucking Golden Feather, or trying to prove whether single or double flowers are the more beautiful, or whether wild or exotic plants possess the greater charms. From these very abstruse and intellect-taxing—and I had almost said temper-trying—subjects I am happily free, and free also from fruit perplexities, for my "third day" was spent among trees, shrubs, and Conifers, and a reference to them will at least not be unseasonable on the eve of planting time.

The principal nursery—for there are two enclosures—is a parallelogram about a quarter of a mile long and perhaps 100 yards wide. It is divided into compartments longitudinally by hedges of Conifers about a foot wide, close and dense, and over 6 feet high. A walk runs down the centre of each compartment, and at intervals of 15 or 20 yards are cross hedges, some of them forming a segment of a circle, the top limb commencing at the top of the main hedge, the bottom resting as it were on the walk. Others are carried across the borders without any reduction of height, and meet each other over the walk, forming arches. Some of the hedges are Spruce, others Thuias; *T. gigantea*, or, as it is commonly called, *T. Lobbi*, making a beautiful hedge. Others are formed of *Abies excelsa*, *Picea Pinsapo*, &c., the latter being injured by the frost. As all these hedges are kept in perfect order the effect is quite unique; while, as will be readily understood, they afford valuable shelter, and at the same time nothing in the squares can be passed without being seen. Again, every avenue is distinguished by a letter, and every compartment numbered, so that if anything is wanted to be removed from or inserted in a particular place it is only requisite to give the number and letter, and there is no time lost in searching, and even a labourer cannot easily make a mistake. These remarks apply to the side avenues, the central one being different—wider and more imposing. The boundary lines here are formed with Purple Beeches and Acer *Negundo* variegata alternately planted and pruned, not clipped, into the form of cones, each having a base of about 3 feet where the trees touch each other, the height of many being about 18 feet. The rows are somewhat broken in places, but the effect of the stately columns with their boldly contrasting foliage is very striking. The borders along this avenue are divided into squares (open next the walk) by hedges of *Thuia occidentalis* 2 feet high. These enclosures were formed so that each would accommodate a single specimen, with the object of testing its beauty, hardiness, and worth. A pair of each kind were planted opposite each other in these squares, of which there are, I think, 170, for writing from memory I cannot pretend to numerical exactitude. "But why not have taken notes?" Well, taking notes on a rainy day is a nuisance whether one has an umbrella or not, so much of that formality was dispensed with. The squares were planted in 1858, Mr. Van Geert having at that time received many new plants from his friend Siebold. These remained and were proved, such of them that flourished being fine specimens at the time of the coronation of His Majesty King Leopold, who purchased one of each for planting at Laeken; the remainder, having then served their purpose, were sent to the first Paris International Exhibition, and from thence were distributed. The squares were subsequently re-occupied, but in a less systematic manner, but the object remaining the same—namely, proving the characters of new introductions as they were received. In these trial squares are many specimens that merit notice now, especially as those that remain healthy after winters that have killed Pear trees are unquestionably hardy.

One of the first specimens that arrested attention was *Abies Aleoquiana*, or Sir Rutherford Alcock's Japanese Spruce, about 15 feet high. At this height the beauty of this fine Spruce can be seen, as the glaucous undersides of the leaves are apparent, and the colour of the tree is a singular mixture of silvery blue and green, which cannot be perceived in small trees. This very hardy and decidedly ornamental species was introduced by the late Mr. J. G. Veitch in 1861, and was named in honour of Sir Rutherford Alcock, who was then British Minister at Yeddo. It should be included in all collections of Conifers. Near it was *Larix Kämpferi*, the Golden Chinese Larch, but much larger and uninjured,

except its leader. It is a distinct and fine form, hardy and ornamental. *Abies Pattoniana*, a free and graceful form of the Hemlock Spruce, Cedar-like in growth and most elegant, was 9 feet high; the young leaves being glaucous and the old leaves green, gave to the specimen a singular appearance. *A. Douglasii glauca* and *A. Nordmanniana aurea*, distinct forms of these two noble Firs, were both fine, *Cupressus Lawsoniana intertexta* near them contrasting effectively by its distinct, weeping, and most elegant growth. We now come to *Abies concolor*, which is considered by some authorities to be synonymous with *A. lasiocarpa*, but Mr. Van Geert is not one of them. Although he speaks highly of Messrs. Veitch's new work on the Coniferae he cannot ignore the testimony of his plants, and the stocks of both at Calmpthout are clearly enough distinct. The leaves of the former differ both in colour and arrangement from those of the other, being arranged all round the branches, and not pectinate as in *C. lasiocarpa*. Along every young growth of this a pencil could be laid without touching a leaf, but it was impossible to do anything of the kind with the plants of *A. concolor*. Both, however, are among the finest and hardiest of the North American Silver Firs, and form noble lawn ornaments. *Abies orientalis*, or, as known in this and many other nurseries as *A. Witmanniana*, 20 feet high. This is a very hardy and beautiful Spruce; its early growths are bright yellow, and as the colour changes slowly the tree has a distinct and attractive appearance for a long time. *Picea grandis* and *P. amabilis* have both been injured by the intensity of the frost. *P. siberica*, 16 feet high, is attractive by its fine rich green, but this species produces its young growth so early that it is occasionally injured by frost. *P. Pinsapo glauca* is compact in habit and very beautiful. *Abies nigra pumila* is also very dense and very dark; but *A. Menziesii* is not proving satisfactory, as the trees after they attain a fair size lose so many leaves.

It is gratifying to notice how admirably the *Retinosporas* have endured the severity of the frost. Not a spray appears to have been injured, and henceforth these elegant Conifers may be planted without fear. There are thousands of plants in varied heights, a specimen 15 feet high of *R. plumosa* being very beautiful. *R. p. argentea*, 10 feet high, has a singular appearance, as the bottom of the specimen is of the normal form, only the upper portion being variegated, the growth being regular throughout. All the other sorts of *Retinosporas* are similarly fresh and healthy, and their ornamental character is well displayed. *Thuopsis borealis pendula* is one of the best varieties of the species, and *T. b. compressa* attracts notice, it being more dwarf and dense than the variety *compacta*. *T. dolabrata* is largely grown, and has received no injury. It is not generally known that this is one of the finest room and corridor plants in existence; but that it is I shall be able to adduce sufficient testimony, but not gathered in Belgium. *Thuias* have also passed the wintry ordeal well. All the popular forms are included in the collection, but none was more attractive than a grand specimen of *T. Wareana*, bearing thousands of small yellowish cones. Only one form of *Cryptomeria japonica* has escaped destruction—namely, the variety *compacta*, and it is fresh, green, and healthy, the specimen being 14 feet high. All the *Hollies* were cut to the ground, and most of the *Yews* were killed. One of them, however, *Taxus cuspidata*, the true Japanese Yew, as received direct from Siebold, has not had a leaf discoloured; the best specimen is 5 feet high, handsome in form, and as green as grass. Mr. Van Geert says the excellent habit of this Yew is only maintained by taking the graft from leaders; if side growths are used a spreading and less attractive habit is assumed by the shrubs. The distinct *T. Dovastoni* has only been slightly injured; and a number of plants grafted with the Golden form—a new variety not yet in commerce—have survived. When these are established the specimens will resemble golden umbrellas. *Torreya myristica* (the Californian Nutmeg) has proved quite hardy, and when well grown and covered with fruits it is very ornamental. Amongst the *Junipers* *J. procumbens* merits notice. It rarely exceeds 9 inches in height, and is grown for covering banks in hot sunny positions.

There are many more noteworthy Conifers, but one only can be alluded to—namely, the new variety exhibited this year for the first time by Mr. Van Geert, under the name of *Pinus commutata argentea*, and which secured the first prize at the Antwerp Exhibition in the class for new plants raised from seed. A similar award was also unanimously granted to it the week following at the Show of the Royal Linnean Society held in Brussels. The plants exhibited were like frosted silver with a blueish tint, and the stocks in the nursery had passed the winter scatheless. The demand for them, however, was great, and all the best are probably gone now. It is quite distinct from *P. Englemanni* as grown in this nursery, the latter having much longer and irregular leaves, and was, moreover, much injured by frost. This

new and decidedly attractive Silver Fir is a variety of great promise and an acquisition.

Too brief must be the reference to some other occupants of these nurseries. The different varieties of Tulip Trees demand attention. *Liriodendron tulipifera aurea marginata* has grand foliage, clearly margined with bright gold, producing a splendid effect. *L. t. integrifolia* has noble foliage, and the trees possess the valuable property of flowering when 4 or 5 feet high. *L. t. fastigiata* is remarkable in having the close upright growth of the Lombardy Poplar. These varieties were raised here, and have survived the winter with impunity. *Sambucus nigra punctata* is a small-leaved Elder, which seen at a distance resembles a mass of white flowers. The more the shoots are pinched the whiter are the succeeding growths, many of the tips being pure white. Large bushes kept in form by pinching have a remarkable effect, and would afford a striking contrast in public parks and private pleasure grounds with the surrounding greenery. *Cornus siberica alba marginata* is undoubtedly one of the finest of variegated shrubs; the foliage is not burnt by the sun in summer, nor are the shrubs injured by the most severe frost. The Japanese Walnut, *Juglans japonica*, commands notice by its grand leaves; it is far more imposing than the English Walnut, but the trees have not yet fruited. Oaks with splendid foliage, such as *Quercus magnifica rubra*, *Q. macrocarpa*, and others; weeping trees of all kinds, and not a few rarities add to the beauty and diversified character of the grounds; but only one more plant can be particularised—not because it is rare, but because of its splendid condition. As seen grown in pots for balcony decoration and in shrubberies in England *Hydrangea paniculata grandiflora* is often fine, but as seen in this deep alluvial soil it was magnificent. A correspondent lately referred to the improved condition of plants that had been cut down by the frost. Those now under notice had been similarly cut down, and produced growths as thick as a man's finger, each terminating with a head of flowers as large as a moderate-sized bee hive, but more pointed. One plant had forty-three of these trusses and was grand. Let beds be made for this *Hydrangea* distant from large deciduous trees that deprive the soil of its fertility; let the ground be deeply trenched and well enriched, the plants cut down annually and the beds regularly dressed with manure, and a far different and far finer effect will be produced by this plant than many people dream of. If such results can be produced as those referred to my "day in the country" will not have been spent in vain, and this tedious description will be excusable.

I may add that the land in these nurseries is kept in a high state of fertility without the aid of farmyard manure. Every vestige of vegetation is saved, all the clippings of hedges, leaves, &c., being carefully collected. A covered tank is provided, and a shelf above for jars of chemicals. The natural components of the soil being ascertained, and elements necessary for the growth of the trees and Conifers understood, the necessary fertilisers are thrown in the tank, and in due time the contents are poured on the heaps periodically. The compost is not spread on the ground and dug-in, but is spread in every hole before a tree is planted. Nothing could be more satisfactory than the bushy fibres that are retained close to the stems, thus rendering transplanting as safe as possible, while the shrubs and trees are in the best health and colour. This "practice with science" routine has proved its value by many years of experience, and is not the least noteworthy feature of Calmpthout.—J. WRIGHT.



At a General Meeting of the ROYAL HORTICULTURAL SOCIETY held on Tuesday last, Sir Trevor Lawrence, Bart., M.P., in the chair, the following candidates were duly elected Fellows of the Society—viz., James Alexander, William Armit, C. T. Buckland, Mrs. Cotton, D. Barri Crawshaw, C. Herbert Curtis, Charles Digby Harron, A. A. James, E. R. Kesterton, Mrs. M. Macartney, Capt. F. L. Philp, Miss Russell, Mrs. Mayow Short, George Todd, Edmund Tonks.

— ON Tuesday last, after the meeting of the Royal Horticultural Society's Fruit and Floral Committees, Sir Trevor Law-

rence, Bart., in the presence of a large company, presented a TESTIMONIAL TO MR. DOMINY as a recognition of the valuable services he has rendered to horticulture, particularly in hybridising Orchids and Nepenthes. Subscriptions were received from over two hundred friends, a gold watch and two hundred guineas being the substantial form in which these were conveyed to Mr. Dominy. In the course of some remarks by Sir Trevor Lawrence he observed that the first hybrid Orchid was obtained by this hybridist in 1852—namely, *Cattleya Dominiana*; but his greatest triumph in this class of plants was *Cattleya exoniensis*. In 1864 the Devon and Exeter Horticultural Society presented Mr. Dominy with a piece of plate in recognition of his success as a hybridiser. Dr. Masters also testified to the value of the services which had been rendered to the horticultural world by the numerous beautiful Orchids raised by hybridising. In thanking his friends for their presentation Mr. Dominy stated that he owed his position and success to his great love for the profession of gardening, and his passport had been sobriety, patience, and perseverance.

— RELATIVE TO THE APPROACH OF WINTER, Mr. Hudson, The Gardens, Craggside, near Morpeth, informs us that the thermometer was 6° below freezing on the morning of the 9th inst.; and we learn from other districts that Dahlias, Kidney Beans, and similarly tender plants were cut down by frost last week.

— THE annual meeting of the NATIONAL AURICULA, CARNATION, AND PICOTEE SOCIETIES was held by permission of the Council of Royal Horticultural Society in the Council-room on the 11th inst. It was decided to hold the Auricula Exhibition on April 25th, and the Carnation and Picotee on July 25th, 1882, in the gardens of the Royal Horticultural Society. There are no alterations in the schedules, except that some restrictions are placed on the exhibitors of Show Auriculas in the interests of small growers. "Exhibitors showing in the classes for twelve and six will not be permitted to exhibit in Classes 4 and 2." The prizes for seedlings are to be continued as usual.

— MR. MOORMAN, gardener to the Misses Christy, Coombe Bank, Kingston, states that he has *CEANOTHUS GLOIRE DE VERSAILLES* still flowering freely in the garden, bearing large close trusses of blueish lilac flowers. It is unquestionably a fine variety; indeed, one of the best in cultivation.

— LAST week an EXHIBITION OF GOURDS was held at the ALEXANDRA PALACE, and, though the exhibits were not surprisingly abundant, the competition has the recommendation of novelty, at least so far as English shows are concerned. Two classes were provided, the first for the best collection of diverse Gourds, and the second for the heaviest Gourd of any kind. In both the prizes were liberal. Mr. J. Cattell of Westerham, Kent, had the best collection, comprising a great number of ornamental and peculiar forms, from the small but pretty Gooseberry Gourd to the enormous Pumpkins. The red-striped and strangely formed Turk's-cap Gourds, Custard Marrows, and many others were represented. Messrs. Biddles & Co., Loughborough; C. Osman, Sutton, Surrey; and W. Wiggins & Son, Tottenham, were the other contributors, taking the prizes in the order they are named with interesting but less varied collections than the first-named. One showed a number of green 'Tomatoes, apparently,' under the impression that they were included in the appellation Gourds. The heaviest example was contributed by Mr. Gibbon, gardener to R. C. L. Bevan, Esq., Trent Park, East Barnet, and weighed 138½ lbs., being of globular form and quite 2½ feet in diameter. The next in weight was from Mr. J. Sheppard, The Gardens, Wolverstone, Ipswich, but that was 30 lbs. less than Mr. Gibbon's. Mr. J. Cattell held the third place with a fruit weighing 102½ lbs. In addition to these Messrs. W. Paul & Son, Waltham Cross, exhibited some large collections of Apples, Pears, and Roses, some

of the latter being very bright for such a late period of the season. Duchess of Bedford and Crown Prince were especially noteworthy. Numbers of Gladioli spikes were arranged upon tables, and served to brighten considerably Mr. J. F. Johnson's novel exhibition.

— MR. E. LUCKHURST sends the following remarks on TOMATO EARLY GEM:—"What is our standard of excellence for Tomatoes? Fine flavour, medium size, a smooth, rounded, handsome form free from ribs or indentions, an abundant crop, and early maturity. This is certainly not a description of the 'Giants' and 'Trophys,' but it faithfully portrays the chief points in Early Gem, which was, I believe, introduced a few years ago by Messrs. Veitch. The crop of its deliciously flavoured fruit is most abundant; and although all the huge clusters were left unthinned, yet some of the fruits weighed half a pound; but most of it is very little more than half that weight, very handsome, and of the best size for sending to table, where its remarkable flavour renders it a great favourite."

— IN connection with the coming CHRYSANTHEMUM EXHIBITION SEASON we are glad to observe that the majority of fixtures have been very carefully determined, so as to avoid clashing with other societies, especially those in neighbouring districts. In one important instance, however, the opposite is the case. Both the Kingston and the Westminster Aquarium Shows are noted for their extent and the quality of the exhibits, yet they are announced to be opened upon the same day, and consequently it will be strange if they do not both suffer by the absence of some exhibitors.

— IN the course of the address to the American Pomological Society at the eighteenth session held in Boston, September 14th to 16th, by the President, Marshall P. Wilder, Esq., occur the following remarks upon RAISING THE STANDARD OF MARKET FRUITS:—"Let us not forget the importance of maintaining a proper regard to the characteristics of a good fruit. So long as we raise fruit to eat we can have no hesitation in giving the first place to its eating qualities. Next in importance is durability, or keeping—that is, the property, whether early or late, of remaining sound after being gathered. The third requisite is size; but while we desire those of liberal size we should not forget that one of monstrous proportions is neither desirable for the market nor for table use. But, whether large or small, a variety should be uniform in size. Beauty, colour, and form will always be regarded as of great value. Brilliant colours will charm the eye although they may not gratify the taste, but a misshapen ugly form will never be tolerated by anyone of cultivated taste. I have dwelt upon this branch of our subject—and I would, if possible, enforce my views upon it still more strongly—not only because I desire to see the quality of our fruits raised, but to save the American Pomological Society from the reproach of recommending fruits, otherwise unworthy, because 'there is money in them.' I have spoken of the latter point with some reluctance, but from the belief that too much regard is being had to the size without regard to the form or beauty of fruit. If it be deemed advisable to give premiums to enlarge the size of products—as, for instance, the biggest Strawberry, Squash, or other monstrosity, let it be done for size without regard to form, colour, or quality, and not for the 'largest and best,' as is generally the custom. In considering perfection of form and quality before monstrous size the growers of vegetables are in advance of pomologists. It is our duty to correct public taste by our example, and not to encourage the growth of monstrosities or misshapen fruits which, if applied to the Apple, Pear, or even the Potato or Turnip, would not be worthy of cultivation."

— PRICE'S Patent Candle Company remind us of the approach of bad weather by sending us a parcel of GISHURSTINE. We have only to say that further experience justifies us in empha-

sising what we said of this preparation last year—that it is equally valuable for the boots of gardeners, farmers, and gamekeepers who wish to keep the leather soft and their feet dry.

AUTUMN-BLOOMING HERBACEOUS PLANTS.

THE many excellent engravings of hardy herbaceous plants published from time to time in the Journal, particularly those blooming during the autumn months, are a great acquisition, thereby diffusing useful knowledge to gardeners and the public who have to supply, or wish for a supply, of cut flowers when the beauty of summer may be said to have passed its zenith. I can speak much in praise of the two plants figured last week—*Chrysoscoma Linosyris* and *Senecio pulcher*. Of the figure of the latter, the shape and size of the flower are excellent, but for the full value of the plants to be appreciated it is necessary to say that each stem carries from twelve to fifteen large and elegant flowers, several of them being open at the same time. Some of the *Michaelmas Daisies* are very beautiful just now, particularly *Aster crenatus*. Our borders are also gay with *Pyrethrum uliginosum* and *Chrysanthemum maximum*, these have been in flower some time, while the *Coreopsis linifolia* has been in bloom all the summer and is not done yet, also the *Rudbeckia Newmanii* is still gay with flowers. *Gaillardias* are now just over, but have bloomed profusely; but *Lobelia cardinalis* and *Anemones japonica*, *japonica alba*, and *hybrida* are as full of flower as they were a month ago. Had we never seen any but the pink *Anemone* we could but have said much in its praise, but the white is by far the most useful. Recently I had occasion to make several wreaths on the occasion of the loss of one of my respected employers, and the prettiest to my fancy of all the wreaths made was one composed solely of *Anemone japonica alba* and *Adiantum cuneatum*. These *Anemones* should be in every garden, as they bloom abundantly and are not particular as to soil.—J. W. MOORMAN.

FRUIT NOTES—APPLES AND PEARS.

NO doubt brief remarks contributed from various parts of the country concerning the fruit crops are interesting; yet it is not enough to note which crops are above and which are below the average in certain gardens; it would be far more to the point to learn what varieties are found most profitable in the manner adopted by Mr. Harding on page 170. If something of this sort were not annually forthcoming, many intending planters would have to rely on their own selection from the trade catalogues, which, excellent as they may be, are, to say the least, very bewildering, seeing how many varieties of the respective fruits are catalogued. Or, again, if the selection is left to the vendors the result may not in the end prove satisfactory, as the experience of the foremen in the department does not often extend beyond the management of trees of a saleable size. The present is a good time to publish any hints on the subject, and those who intend planting ought to make their selections without much further delay and order early, the trade motto being "First come, first served," and that too with the best trees.

I am sorry to say our fruit crops, though in one or two instances better than usual, have still been somewhat disappointing. Apples of various kinds and in various positions all flowered profusely, but when fully expanded we experienced 10° of frost, which not only destroyed expanded blooms but also the majority of the later buds. What few blooms in many cases that did escape were very puny, and the fruits that followed are poor accordingly. The varieties the least affected by the frost, strange to say, are invariably good bearers, thus showing what a good constitution will do, even rendering them good frost-resisters. The crops of *Keswick* and *Carlisle Codlins* have been enormous. The next in point of productiveness are the trees of *Hanwell Souring*, and this is a valuable kitchen Apple, keeping till late in the spring. *Reinette du Canada* also cropped fairly, is a good keeper, and adapted for either culinary or dessert purposes. *Blenheim Pippin*, I am sorry to say, has cropped lightly, but the trees are in the lowest position in the garden, and consequently had not a fair chance. *Warner's King* and *Tower of Glammis* have borne fair crops, but the fruits are smaller than usual. They are profitable culinary kinds, and the same may be said of *Cellini*. Of dessert kinds we have fair crops of *Margil*, *Ribston Pippin*, *Court Pendu Plat*, *Cox's Orange Pippin*, and *Scarlet Nonpareil*, all of which may be considered profitable varieties and suitable for small gardens. To these may well be added the *Devonshire Quarrenden*. On higher ground near here the orchard trees are bearing very heavy crops of fruit, but I have not had an opportunity of learning the names of the varieties.

Pears generally have borne very good crops, especially those on

the walls, owing to their having set their fruit before the severe frosts were experienced. This was not the case, however, with a large standard tree of *Chaumontel* situated in the centre of the garden, and yet, in spite of the frost, there are several bushels of clean fair-sized fruit now hanging. We had abundance of *Doyenné d'Été*, but they were very small and much too dry to be of service. *Beurré Giffard* is somewhat later, but is a more valuable variety. *Jargonelles* were rather scarce; but of the delicious *Williams' Bon Chrétien* we had capital crops from trees trained to south, west, and east walls.

Louise Bonne of Jersey is a great favourite with me, being of good habit, productive, and the fruit handsome and good in quality. It succeeded here in south and east aspects on walls, and also as a pyramid. We ripened a few to follow the *Bon Chrétien*. *Beurré d'Amanlis* on a south wall cropped heavily, and the fruits are now remarkably good. On an east wall the fruit of this variety are very inferior in quality, whereas *Beurré Superfin*, which ripens about the same time, is most delicious, and this variety should receive the preference. Both succeed as standards or pyramids, but in this case the fruits are generally smaller. *Beurré Colman* on a south wall had heavy crops, and the fruits are now ripening. It is not generally a good bearer, and this season the fruits are below medium size. *Marie Louise* has done well this season, notably on an east wall, and, as is well known, is one of the best. *Gansel's Bergamot* does not succeed here, and the same may be said of *General Todtleben*. I have never yet tasted a good fruit of the latter. *Beurré de Capiaumont* as usual has borne very heavy crops, but I have a poor opinion of its quality. *Duchesse d'Angoulême* is fairly cropped, but this, again, is generally too coarse in texture. *Glou Morceau*, I am sorry to say, is cracking badly on the south wall, but we have a fair crop of clean fruit on an east wall. *Huyshe's Victoria* is moderately prolific on south, west, and east walls, and is a very good late Pear. *Ne Plus Meuris* on an east wall is bearing a heavy crop of small fruit, which when ripe will consist of little beside core. *Autumn Crassane* and *Althorp Crassane* are bearing heavily on walls and standards. The latter is a profitable variety, but the former is generally very inferior in quality. *Beurré Diel* as usual is bearing good crops of fine fruit. *Beurré Clairgeau* on a west wall has cropped most heavily, and the fruit are large and clean, but those on south and east walls are very inferior. It is not a first-class variety at any time. *Beurré Rance* on an east wall is carrying a splendid crop of fine fruit, and these will be invaluable in the spring. The fruit of *Easter Beurré* have cracked badly and are worthless; and those of *Winter Nelis*, with the exception of those on an east wall, are much too small to be of service. When of good size it is most delicious. A pyramid of *Knight's Monarch* is bearing a good clean crop of fruit, which will be very acceptable in midwinter.

The soil of a garden is a deep strong loam on a clay subsoil, is well drained, and seems to suit Pears especially. Those Pears on the *Quince* stock were the first to be fruitful, but those on the Pear are now much more profitable.—W. IGGULDEN.

LINSEED OIL v. PEAR SCALE

UPWARDS of thirty years ago I had a Pear tree under my charge which was very much infested with scale. As only this tree was attacked, and to prevent the scale reaching the others, I gave orders for it to be taken out and burned. One of the men said, "Paint it all over with linseed oil except the buds, and that will clean it." I said it would kill the tree. He replied, "No, I have seen it done, and it was a complete cure." All the other men were of the same opinion as myself; and as the young man was rather of an inquiring turn of mind, and I had no reason to doubt the truth of what he said, and not caring much whether the tree was killed or not, I gave him permission to perform the operation as he had seen it done, and that if he killed the tree the consequences to him would be serious. The oil was applied in February; and at the usual time when the buds swelled they did so on the oiled tree, and he of course was sanguine and made the most of it, but it was only for a time. The leaves made no progress, a shoot was never produced, and when the hot weather came the leaves withered. In the autumn they made another attempt, but soon faded; and in the winter the tree was taken out, and when cut up it appeared as if the oil had penetrated into the heart of the wood. It was of a dark brown colour. The tree remained a curiosity the whole year, being very conspicuous standing on a wall among others with only a few small green leaves. It was the object of many inquiries, and was called *Adams' Tree*, the name of the experimenter. The poor fellow was tortured about it during the whole summer by the neighbours, and for certain he was glad when he had orders to take it out and cut it up.

Such is my experience with the linseed oil for killing scale on trees. No doubt but it will kill the scale, but what of the trees? In this case the operation was carefully performed, and no more oil was put on the tree than in my opinion was required to kill the scale—only a thin coating, and the buds not painted, so that the work was done according to the quotation from a former member of the *Cottage Gardener* fourteen years ago. When the idea of painting with oil occurred I am unable to say, or by whom; but it seems to have entered the minds of not a few, been

tried, and given up, and again revived as something new. As in the case of other ideas, my advice would be to all who may think of trying it is that given by *Punch* to those about to marry, "Don't."—ALEX. SHEARER.

TEN years ago I painted a large Marie Louise Pear tree with linseed oil procured from our painter's shop, rubbing it in well to the bark but avoiding the buds. It completely destroyed the scale and did not do the least harm to the tree, which is still in



Fig. 55.—CALCEOLARIA PAVONII.

fine health. Many years ago, when at Drumlanrig under Mr. McIntosh, I assisted to paint a wall of Pears and Plums with spirit of tar slightly diluted, painting buds as well as bark. It killed the scale effectually and every bud as well, and a good portion of the spurs; but the older wood broke freely at midsummer, and I never saw finer foliage on trees. They afterwards grew well.—J. SIMPSON, *Wortley*.

CALCEOLARIA PAVONII.

AS evidence of the value of this *Calceolaria* for the autumn decoration of the conservatory, we print the following extract

from a letter received from Messrs. James Dickson & Sons, Newton Nurseries, Chester:—"The enclosed flowers of *Calceolaria Pavonii* is a lateral spray, the main spikes being upwards of 2 feet long. The plant is now finely in flower, and will remain for some time. It is 7 feet high, 7 feet in diameter, and growing in a 12-inch pot. It is a grand plant for conservatory decoration. The small flower sent is *Calceolaria bicolor*, a fine species for autumn blooming in the conservatory."

Such a plant as the one referred to is seldom seen, and must indeed be "grand." The flowers are large, smooth, round, and of a clear yet soft yellow colour that is highly pleasing. The leaves are also very distinct by their broad winged petioles;

they are large, perfoliate, toothed, with a wrinkled surface and more or less hairy. *Calceolaria Pavonii* is described in the "Botanical Magazine," where it is figured (tab. 4525, 1850), as a rare and remarkably fine species figured by Ruiz and Pavon as the *C. perfoliata* of Linnæus, from the original plant detected by them at Chuicao and Muña in the Andes of Peru. The figure truthfully represents the spray that has been sent to us, and in some degree indicates how imposing a plant must be that is 7 feet high and through, and with flower spikes 2 feet long. A plant so fine and of easy culture merits attention.

ROYAL HORTICULTURAL SOCIETY.

OCTOBER 11TH.

THE monthly meetings are always very attractive and well attended, and this one was no exception to the rule. The Council-room was quite crowded with exhibits of flowers, plants, and fruit, while Apples and Pears formed an extensive and beautiful display in the vestibule. For October Orchids were remarkably well represented, and imparted much brightness to the meeting. A large number of members of both Committees attended. After the meeting Mr. Dominy was presented with a testimonial, particulars of which are given on another page.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. Mr. Thomas Coomber, gardener to J. I. Rolls, Esq., Hendre Park, Monmouth, sent a Smooth Cayenne Pine, which received a cultural commendation. Mr. D. Wilson, gardener to Earl Fortescue, Castle Hill, South Molton, sent a Smooth Cayenne Pine weighing 8 lbs. 2 ozs., which received a cultural commendation. Mr. E. J. Atherton of Chatteris sent two dishes of seedling Apples, which were passed as being of no merit. Mr. Edward Holmes, Whittington Nursery, Lichfield, sent a seedling Crab, in shape like a long Siberian Crab. Col. R. Trevor Clarke, Welton Place, Daventry, sent a seedling Pear raised from Marie Louise, which received a first-class certificate. A pretty German Apple called Landsberger Reinette was exhibited from the garden at Chiswick, and was found to be of superior flavour. Mr. Woodbridge sent a bunch of Foster's Seedling, which received a vote of thanks. Messrs. Lane & Son of Berkhamstead exhibited eight baskets of Grapes in a high state of cultivation; a silver Knightian medal was awarded. Mr. Roberts, The Gardens, Gunnersbury, sent two Queen Pines, one weighing 5 lbs. and the other 5 lbs. 12 ozs.; a cultural commendation was awarded. Mr. Dell, Stoke Rochford, Grantham, sent a seedling Apple which was passed. Mr. C. Haycock sent a dish of Peach Sanguine Grosse. The Committee were of opinion that it is an American seedling from the old Sanguinole; the quality was inferior. A vote of thanks was awarded. He also sent two branches of a late Plum, name unknown; the Committee identified it as Cheshire Damson. Mr. Mundell, gardener to Lord Ebury, Moorpark, sent an Apple called Moorpark Pippin. It was considered the same as an Apple grown in Kent under the name of Langby. It was considered a good kitchen Apple, but not worthy of a certificate. He also sent four handsome Queen Pines, to which a cultural commendation was awarded. Messrs. Veitch & Sons sent an Apple called Barker's Seedling, a large handsome fruit, some of which were as large as Warner's King; and Gloria Mundi—a very handsome Apple, but not superior to others already in cultivation. Mr. D. Lumsden, The Gardens, Bloxholm, sent a seedling Apple raised from Kerry Pippin crossed by London Pippin, but it was not considered of sufficient merit to receive any award. Mr. E. Gandy of Boughton Monchelsea sent fruit of Loddington Seedling Apple, large and handsome. Mr. Haywood, Woodhatch Lodge, Reigate, sent fruit of Melon Apple, for which a letter of thanks was awarded. Mr. O. F. Wainright, Rushton Hall, Kettering, sent a dish of Lemons, to which a cultural commendation was awarded. Messrs. Carter & Co., Holborn, sent the new Tennisball Onion and the new straw-coloured Giant Rocca, new varieties from the South of Europe; a letter of thanks was awarded. Messrs. Veitch staged a collection of nineteen varieties Kale. Mr. T. Laxton, Bedford, sent a dish of The Czar Runner Bean, which was passed as being too coarse. The General Horticultural Company exhibited two boxes, one containing Apples and the other Tomatoes from America, to show the safe manner in which they had travelled so far, and the system was highly commended.

In the vestibule, Apples, Pears, Potatoes, and Kales constituted an extensive and interesting display. Messrs. J. Veitch & Sons' collection of 164 varieties of Apples received especial attention, not only on account of the large number of varieties shown, but because the fruits were, in the majority of cases, very fine. It is worthy of notice also that all the fruit was gathered from the trees in Messrs. Veitch's Fulham nursery, scarcely out of the London smoke, and yet the examples contributed would have been creditable to any grower in the most favoured position. It is unnecessary to give the names of the varieties, indeed a selection of the best would alone occupy considerable space; suffice it that all the really good Apples in cultivation were represented, and the silver Knightian medal awarded was well merited. A number of Kales was also shown by the same firm, Dwarf Green Curled, Ragged Jack, Dwarf Purple Curled, Laciniata, and the Palm Tree form being noteworthy.

Messrs. H. Lane & Son, Great Berkhamstead, also had a large collection of Apples, comprising about a hundred varieties, some of

the fruits being very fine, especially Mère de Ménage, Scarlet Admirable, Emperor Alexander, Warner's King, and New Hawthornden. A collection of Cob Nuts and Filberts was also staged, including the Kentish, Gosford, and Daviana Cobs, with the open and close Filberts. A silver Knightian medal was awarded for the collection. Mr. R. Dean, Ealing, was awarded a bronze Banksian medal for a collection of hardy fruits, comprising some good Apples and Pears. Mr. Steggles, gardener to A. W. Green, Esq., Faulkners House, Tonbridge, also sent thirty-two dishes of Pears, some of very fine size. Doyenné Boussoch, Catillac, Beurré Diel, and Beurré Superfin were very fine. From the Society's Chiswick Garden two creditable collections were sent—namely, 192 dishes of Apples and 114 dishes of Potatoes. The majority of the Apples were excellent samples of their respective varieties.

There were only two competitors for Messrs. Hooper & Co.'s prizes for four dishes of Potatoes of the varieties Hooper's Round White, Covent Garden Perfection, Pride of America, and Beauty of Kent. Mr. C. W. Howard of Canterbury was accorded the first prize for clean even tubers, and Mr. G. Steggles followed with similar specimens.

FLORAL COMMITTEE.—James McIntosh, Esq., in the chair. Messrs. J. Veitch & Sons, Chelsea, had an interesting group of new and choice plants, many of which were certificated. One very noticeable portion of the collection were the *Cypripediums*, including good examples of the hybrids *C. euryandum* (*C. barbatum* × *C. Sedeni*), *C. porphyreum* (*C. Roezlii* × *C. Schlimii*), *C. vexillarium* (*C. Fairrieanum* × *C. barbatum*), *C. Ashburtonianum* (*C. barbatum* × *C. insigne*), *C. oenanthum* (*C. insigne* Maulei × *C. Harrisianum*), *C. Arthurianum* (*C. insigne* × *C. Fairrieanum*), and *C. calurum* (*C. longifolium* × *C. Sedeni*). Among several other noteworthy plants were a Japanese plant named *Caryopteris mastacantha* (or *incana*), a semi-shrubby plant with narrow obtusely serrated leaves and clusters of pale lilac flowers. Mr. W. Bull, Chelsea, exhibited several new plants and Orchids, among which a variety of *Odontoglossum vexillarium* named *rubellum* was noteworthy. It was shown as "a new autumn-flowered variety." The flowers are of moderate size and good colour, and the variety is said to prolong the blooming season till the end of the year. *Lælia autumnalis atro-rubens*, a variety with very rich dark purple flowers, was also very fine. A cultural commendation was awarded for *Oncidium incurvum*, with three fine panicles each a yard in length of its peculiar purple-spotted flowers. A vote of thanks was accorded for a small but handsome specimen of *Oncidium varicosum*, the bright yellow labellum of this species being of great size, and the compact panicle has a very bright effect.

Mr. B. S. Williams, Upper Holloway, contributed a pretty group of Orchids, including some handsome specimens. *Cælogyne Massangeana* had two racemes of its peculiar buff-coloured flowers. *Oncidium chrysothyrus* was notable for the brilliant yellow colour of its large flowers. *Oncidium ornithorhynchum* had eight fine panicles. Very noticeable also was *Odontoglossum grande* with half a dozen large handsome richly coloured flowers. *Oncidium Forbesii* bore a fine close panicle of bright brown flowers veined with yellow at the margins of the sepals, petals, and lips. Messrs. Rawlings Bros., Romford, sent collections of Show, Fancy, and Pompon Dahlias, representing many fine varieties. Some of the best were in the Show varieties. Prince Bismarck, rich purple, good size; Harrison Weir, very neat, fine bright yellow; Thomas Goodwin, maroon; Joseph Green, scarlet; and Canary, clear yellow. Messrs. H. Cannell & Son, Swanley, exhibited a good collection of Dahlias; the single forms and the Cactus Dahlia, D. Juarezii, were especially well represented. Among the single forms *gracilis perfecta*, scarlet, broad florets; Yellow Dwarf, Paragon, and the pure white form named Alba, were particularly fine. A large number of flowers of a remarkably floriferous Dahlia, Glare of the Garden or Fire King, were shown. The flower heads are bright scarlet, and very effective. A box of Tuberous Begonia blooms was also shown, including several handsome double varieties, notably the beautiful form recently described in these pages as Madame Dumas.

Mr. James, Castle Nursery, Norwood, contributed a group of Orchids, among which several examples of *Vanda cærulea* were very conspicuous and noteworthy. Mr. C. J. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, exhibited a plant of a *Chrysanthemum* with white flowers, said to be a sport from James Salter, and named Lady Selborne. It may be remembered that this variety was shown at the Brixton *Chrysanthemum* Show last year, and awarded a certificate as a distinct and meritorious sport from the well-known James Salter. The Floral Committee did not consider it worthy of a special award. A vote of thanks was accorded to Mr. J. T. Riches, Tooting, for flowers of Michaelmas Daisies, *Aster novæ-angliæ* and *A. ericoides* being notable. *Senecio pulcher* was also fine. A similar award was accorded to G. F. Wilson, Esq., Weybridge, for a fine panicle of *Oncidium unguiculatum*, a species with bright yellow labellum and narrow brownish petals and sepals.

Messrs. J. Carter, High Holborn, sent some fine blooms of African Marigolds, lemon and orange-coloured, one named Cloth of Gold being particularly handsome, very evenly striped with rich deep crimson and yellow. Mr. W. Baldwin, Hassock's Gate, Brighton, was accorded a vote of thanks for a plant of his Double White Mignonette in very good condition, the flowers possessing a surprisingly strong fragrance. Mr. C. Goldsmith, Sandhills, Betchingley, Surrey, sent a strange *Richardia* with a tripled spathe—that is, there were three large white spathes instead of one. Mr. George of Putney sent several seedling *Abutilons* of considerable merit. Brilliant was of a

good scarlet tint; King of Scarlets very dark in colour; and Striata, streaked with orange, were the most noteworthy, the flowers being well formed in each case.

A very interesting group of plants was contributed from the Society's garden at Chiswick, including Pelargoniums, Ferns, Begonias, Bouvardias, Solanums, and many other plants. One unnamed Solanum with spinose leaves and globular deep orange-coloured fruits about an inch in diameter, was observable in this group, and as the fruits appear to be produced freely it is probable the plant will prove useful for decorative purposes. Among the Bouvardias Maiden's Blush, of a pleasing rosy tint; elegans, scarlet; Hogarth, scarlet; and alba elegantissima, white, or faintly tinged with rose, were the best. In addition to the awards named above, votes of thanks were accorded to Messrs. Carter & Co. for their Marigolds; H. Cannell & Son for Single Dahlias; Rawlings Bros. for Dahlias; and James of Norwood for the group of Orchids.

Nepenthes Rajah (Veitch).—A very healthy specimen of this notable Nepenthes was exhibited, and though the pitchers were small they were of a very rich deep red colour. The pitchers of this species are reputed to be the largest of all other Nepenthes, and this is borne out by the dried specimen accompanying the plant, which was 9 or 10 inches in length and 4 to 6 in diameter. The plant shown was raised from seeds imported from Borneo, where it was found by Messrs. Peter Veitch and Burbidge upon Mount Kilu Balu.

Nepenthes madagascarensis (Veitch).—A pretty species, with neat very deep red pitchers. It is close and compact in habit, and seems to form pitchers freely in a young state.

Adiantum cuneatum grandiceps (Veitch).—A variety of this useful Fern with fronds crested or divided at the tips, after the style of so many British Ferns. It is graceful in habit, the heavy points of the fronds inducing a slight drooping appearance.

Masdevallia velifera (Veitch).—A peculiar species, with dull yellowish flowers of moderate size, and possessing a most offensive odour.

Globba coccinea (Veitch).—An extremely ornamental Zinziberaceous plant, with ovate dark green shining leaves, and terminal spikes of small scarlet strangely formed flowers and bracts. Very attractive, and easily grown in ordinary stove temperature.

Davallia gibberosa (Williams).—One of the most distinct forms of Davallias in cultivation, resembling in general appearance some of the Aspleniums of the *A. bulbiferum* type. The fronds are 2 or 2½ feet long, somewhat triangular in outline, and 1 foot broad at the widest portion. The frond is finely divided into linear dark green pinnules or segments, and has a very elegant appearance. The Fern will no doubt become a great favourite.

Amaryllis Mrs. Garfield (Williams).—This was stated to be a cross between *Defiance* and *reticulata*, and it evidently partook of the latter characters strongly. The flowers were not large but of moderately good form, very regularly streaked and netted with clear delicate rose upon a white ground. The softness of the tint and the evenness of the marking rendered the variety very pretty.

Celogyne Massangeana (Williams).—An attractive Orchid, the specimen shown having two long pendulous racemes of buff-coloured flowers.

Adiantum Lathomi (The General Horticultural Company).—This beautiful Fern, which is doubtless destined to take a high position in the favour of Fern-lovers, is another of Mr. Bause's raising, having been selected from a batch of *Adiantum scutum* which had been raised from spores. *A. Lathomi* closely resembles the above-named species in the form and size of the pinnules, but the habit is more compact, and the fronds, too, have their divisions more closely set, so that a fine head is formed, eminently suiting the plant for exhibition. The specimen shown was a handsome one in every way, several feet in diameter, and as healthy and fresh as could be desired.

Dioon edule lanata (Bull).—A neat and pretty variety, differing chiefly from the species in the slight woolly surface of the rigid fronds.

Odontoglossum vexillarium rubellum (Bull).—Many varieties of this fine *Odontoglossum* are now known; and though the one named above has not such large flowers as some others, it appears to possess other characters of considerable value. It was shown as an autumn-flowering variety, and is described as continuing in flower until the end of the year. Another distinctive mark is that the flowers on all the plants are exactly alike in shade—namely, a deep rose tint evenly spread over the flower.

Coleus Ada Sentance.—Another of the numerous handsome *Coleuses* that have been raised by Mr. King, gardener to G. Simpson, Esq., Wray Park, Reigate. The leaves are heart-shape, very neat in outline, rich rosy crimson in the centre, around which is a band of irregular maroon blotches, and a clearly defined margin of green and yellow. It is a very brightly coloured variety, and is quite equal to some other productions of this raiser. One shown on the same occasion, Mrs. Vogan, was, in the opinion of many, equally deserving of a certificate; the leaves were small, dark crimson, with a green margin, and being of excellent compact habit it would be especially useful for decorative purposes.

Coleus Dolly Varden.—Exhibited by Mr. R. Lloyd of Brookwood. It is a peculiar variety, the leaves being streaked with green, crimson, and maroon, the latter predominating.

Dahlia Beauty (Turner).—A Show variety, with large substantial flowers, bright clear yellow, the florets being tipped with pale pink.

THE GLADIOLUS.

THERE are many interesting points in your correspondent's letter (R. P. Brotherston) which I may like to say something on a little later on; but there is one point at which I am very much surprised, where he says that "I have never made much of these small corms," alluding to the small bulbs which cluster round the large one. I may say that I have now a goodly number of flowering corms raised in this way, that my friend Mr. Banks raises a large number every year, and I have at this moment a row of eighteen Horace Vernet flowering which I obtained two years as spawn on a large corm. If we want to keep up our collections we must depend on these, and therefore I would advise all Gladiolus growers when they are lifting their bulbs now to keep every one of them.—D., Deal.

A WEEK IN LONDON.

BATTERSEA PARK.

THIS, without doubt, is the most attractive park in London. The formation is so varied that it shows to greater advantage the different styles of bedding employed than the others can, as they are mostly flat and have not suitable surroundings for subtropical bedding to produce the same imposing effect as at Battersea. The grounds have been admirably laid out, and are, independent of the bedding, a great attraction in themselves. In following one of the many winding walks we come to several nooks in which some style of bedding is displayed to the best advantage. No matter which way you turn there is some pleasing view—either the peculiar-shaped lake with its beautiful Water Lilies, or portions of the artificial rockwork overhung with *Cotoneaster*, *Vitis*, and other suitable plants.

In the borders numbers of herbaceous plants are employed, and thousands of *Anemone japonica alba* and *Anemone japonica* were flowering at the time of my visit. What an imposing appearance the former presents when grown in quantity near dark-leaved shrubs! In one nook there was quite a plantation of a very fine white Phlox named "The Queen," among stately plants of *Ricinus communis*; this arrangement was very imposing. Pentstemons, too, were freely employed. In addition to these I noticed beds of Roses, Lilliums, Delphiniums, Gladioli, and many other beds of similar plants which were past their best, but must have been conspicuous in their season. Distinct from these were raised mounds and slopes covered with *Sedum*, *Saxifrage*, *Cerastium*, and many other plants. One plant employed in some of the subtropical beds was *Amaranthus caudatus*, and never have I seen it employed with so much taste. It was effectively employed in a circular bed, forming the groundwork for some large plants of *Dracaena lineata*. Funkias are largely planted in the borders and on the grass. Succulent beds also abound, and some of the occupants are very curious and command much attention from visitors. In addition to beds entirely composed of succulents, many are used in the carpet and other beds, as well as being planted on the grass. Palms and *Dracaenas* are freely employed, some being very large and stately.

In some appropriate nooks were fine groups of *Eucalyptus globulus*, other groups being principally composed of *Brugmansias*, probably *B. Knightii*, producing their trumpet-shaped flowers freely; others of *Ricinus sanguineus* and *Solanum macrophyllum* with fine bold leaves. These more or less were mixed with *Lantanas*, *Verbena venosa*, variegated *Veronicas*, and other plants, being edged with *Salvia argentea* and *Chamaepeuce diacantha*. *Gazanias* and Zonal Pelargoniums contrasted well with the surrounding beds. Another handsome subtropical plant, *Polymnia grandis*, was most conspicuous with its large deeply cut leaves. It was very imposing, and scarcely surpassed by any other large-foliaged plant. Very graceful in some of the beds were the *Aralias*, *Acacia lophantha*, *Dracaena gracilis*, and *Grevilleas*. *Erythrina Crista-galli*, which was flowering profusely, was freely used in one of the borders with good effect. *Acer Negundo variegata* and the Golden Elder are also planted in some portions of the park, and contrast well with the green foliage surrounding them. One of the most natural pieces of grouping in the park was that portion devoted to the Ferns. They were grouped in a sheltered position under the shade of trees, and were growing and making new fronds freely, especially the *Cyatheas* and *Dicksonias*. The portion of ground in which they were arranged sloped somewhat on each side, and presented quite the appearance of a natural dell.

The carpet beds were not so numerous as in some of the other parks, but they were in excellent order, the designs neat and elegant, and the colours admirably blended. The soft silvery *Sedum*

acre elegans was freely used, as well as succulents, small *Dracænas*, and others. Some of the plants employed for the lines in these beds were allowed to rise a little higher than others, which added considerably to the beauty of the beds. This style breaks the flatness, and is a great improvement upon the even system that prevailed so long.

The *Pelargoniums* were much dashed with the previous wet weather, but from all appearance had been very brilliant. Henry Jacoby, dark scarlet; Mrs. Holden, pink; and the old *Mangliesii* were still flowering with much freedom. In another portion of the park Dahlias were flowering freely in the borders. French Marigolds and mixed Zinnias were in full bloom and very attractive. Seedling Verbenas and Mignonette planted together constituted a beautiful border, with a few Anemones at the back row.

My hurried run through this beautiful park prevented me from taking notes of many features of interest, but I saw enough to convince me that Mr. Roger deserves to be congratulated on the admirable general condition of the park.—A COUNTRYMAN.

(To be continued.)

ECONOMICAL FLOWER GARDENING.

To those who have to produce a display of border flowers at a little cost and with few appliances, it may be of interest if I narrate my experience and success this year. My object was to raise a number of plants that would give me a good supply of cut flowers for various decorative purposes. In April I formed a good steady hotbed, and after covering it with a layer of soil 3 inches deep I placed over it a large two-light frame. When the temperature was at about 80° and falling, I sowed seeds of African and French Marigolds, Zinnia elegans, German Stocks, and *Pæony Perfection* Asters. As the time for sowing was carefully chosen the plants came up very well, and as soon as they could be handled they were pricked out in boxes and encouraged to grow in a little heat.

By the end of May the plants were all established in the borders, having been put out about the 20th. Since then they have needed little or no attention, and have flourished and produced basketfuls of flowers most useful for all kinds of decorative purposes. The African Marigolds were planted well back in the borders three in a clump. They are now 3 feet high, and are covered with their large orange-coloured flowers, and have been flowering for several weeks. They certainly rival the yellow Dahlias, for they are in flower for a much longer period and are very showy. The French Marigolds are not so tall, but produce a much greater variety of flowers, some of the light tinted buffs being very beautiful, while some are flaked after the manner of a Carnation. Zinnias are now produced much more double than they once were, and are valuable because of their unusual colours. The Stocks have produced a fine display, most of the flowers being double, and have proved most useful for cutting. There are better kinds of Asters for borders than the *Pæony Perfection*, but I grow that variety because the flowers are produced on good stalks, and are most useful in that form for my purposes. The frame in which the plants were sown was 8 feet long and 8 feet broad, and I suppose that 3s. or 4s. at the most would buy seed of the finest strains sufficient for a frame of that size. From such a frame I had hundreds of plants, and many were thrown away as I had not room for them in the borders.

Next season I intend to raise, in addition to the above, a number of *Phlox Drummondii*. The varieties are now so chaste and unique that they have become indispensable. In the same frame also I shall raise *Helichrysums*, for I see my friends have most beautiful displays, and were cutting quantities of flowers during a very wet cold August. I should also mention here that I have had a row of Sweet Peas staked and grown as ordinary Peas, and have had large quantities of their many-coloured fragrant flowers to help in vase and table decoration. If any of your readers wish to have an abundance of flowers for cutting at the lowest cost, from practical experience I can recommend the varieties mentioned above.—VINEX.

CHAPTERS ON INSECTS FOR GARDENERS.—No. 30. NEW SERIES.

A FAMILIAR nursery rhyme acquaints us with the retributive fate that befel "daddy longlegs" in consequence of his undevotional habits, and this name has been loosely applied by individuals, juvenile and adult, to various long-legged insects. It is frequently given to the crane flies (*Tipulæ*), still more often perhaps it is bestowed upon the spiders of the family *Pholcidae* that are seen perambulating walls or ceilings, and also at times lurking upon the shrubs of our gardens. I apprehend they feed more by night

than by day, as I have seldom seen one in the act of devouring anything; but, their bodies being slender, probably they require less food than some of their kin. Resting on the trunks of trees and upon palings they may resemble in colour with outstretched limbs, and the body kept flat, they are evidently in ambush for insects that may approach. These spiders do, however, construct slight webs, though they seem to be seldom "at home." *Pholcus phalangoides* is a common species with a light body darkly streaked.

The spiders of the family *Theridridæ* are of moderate size, some rather small; they are web-weavers, their webs being irregular in shape and composed of fine threads. They are not unusually found near each other, upon bushes or low plants; now and then they are spun in conservatories. The dark-bodied *T. tepidarium* occurs only under glass, its partiality to warmth being supposed to indicate that it is an imported species. A notable peculiarity in the spiders of this family lies in the thorax, which is rather humped and projects over the thorax. Several of these species not only construct a web as a snare, but also make a nest of a tent-like form, and slightly thicker than the web, the outside of which the spiders stud over with small pebbles, bits of twig, or dry leaves. The eggs deposited in this nest are usually enclosed in one or more silken cocoons. The reddish brown black-spotted *Theridion riparium* has been seen feeding its young with ants some time after they had emerged from the egg, others in the group show a similar attention to their progeny. Many persons will have observed in gardens towards the end of the summer tiny pear-shaped objects of a greyish white dotted with a few points, occurring commonly in leaves partly folded. Some might fancy them of a vegetable nature, or large eggs of an insect; these are really the cocoons of *T. pallens*, a small light-coloured spider of this family, which seems to leave its eggs generally. Another small species allied to the preceding, *Lycosia montana*, abundant about hedges and masses of herbage, makes a web that is out of proportion to its own size, and crossed above by many silken cords which help to capture flying insects that may come near. The garden spiders of the family *Epeiridæ* have been conspicuous by their webs for several weeks past, nor do they withdraw from our view in autumn until the last of the moths, flies, and other insects that visit the Ivy bloom have died or become torpid. Those spiders that have in August spread their webs close to or on the ground (as some *Epeiræ* will) destroy a quantity of the injurious *Tipula oleracea*, and just now the webs placed in higher positions are covered with winged aphides. Undoubtedly helpful to horticulture as are these spiders, their webs, unless in nooks and corners, are seldom left undisturbed, but they show astonishing diligence both in repairing and reconstructing. It has been asserted that they go over the web at least once a day, even if it has not been injured, touching it up and strengthening. The *Epeiræ* commonly plant themselves boldly in the centre of this, but sometimes they prefer to secrete themselves under a leaf below their snare and close at hand.

It is not necessary to describe these well-known insects, but a few words must be devoted to their remarkable spinnerets. There are three pairs. The four larger ones are placed at angles to each other, as if to guard the third pair surrounded by them. Each pair has a number of spinning tubes, varying in their size and arrangement. From these spinnerets there is produced not only silk but a gummy secretion; the latter is believed to be developed specially by the inner and lesser pair. It had long been observed that the threads of the webs of the garden spider were more or less sticky, excepting the ends of those which met in the centre, and the old naturalists believed that the insects, having completed the geometric circle, went again over the threads to varnish them with this secretion. But Mr. Underhill gives it as the result of his observations, that the lines of an *Epeira's* web are made sticky while they are being drawn out by the action of the different pairs of spinnerets. Owing to this peculiarity in the web, the maker thereof cannot traverse it without breaking most of the threads, but a spider's strength of limb enables it to do so and avoid being entangled. It is noticeable, however, that one of the geometric spiders cannot traverse the web of a neighbour as easily as it can the web which has been constructed by itself; therefore, should a spider get into a strange web it is in some peril of being overtaken and seized by the rightful occupant. If closely pressed it will cut the threads at its rear and thus baffle pursuit. These spiders have an odd way of suddenly vibrating in the middle of their webs if alarmed, and not only then; hence some people have supposed they oscillate their webs in this way to free them from dust, or to test the strength of their threads. It has been stated that the *Epeiræ* and some other species occasionally make a ticking or snapping sound, but I have not been able to perceive this. Best known of all in this group is the common diadem spider,

E. diadema, with an abdomen of a brownish tint, upon which is mark that has been regarded as a diadem, and also as a cross. In France it is commonly called "Croix de St. Denis." The females are much larger than their male companions, and often prove to be parents of as many as seven hundred or eight hundred young spiders; but no doubt the greater number of these die immature, since the annual average of spiders we see remains much the same. Birds, though chary in touching adult spiders, clear off many of the small fry.

Poets and naturalists have repeatedly spoken of the beauty of the silvery gossamers, "that twinkle into green and gold." The word "gossamer" is, however, so applied to the webs that are produced by more than one species of spider, which webs, spread over bushes and trees, are shown up when the sun shines on a dewy autumn morning. But the proper gossamer spiders are those belonging to the genus *Xysticus*; they are able to rise in the air by means of the silken thread they throw out, and can travel for some distance with the wind. These spiders are so formed that they can move either forwards, backwards, or sideways, and they can run very rapidly though their legs are feeble, excepting the front pair. Some of them chase their prey, others hide to obtain it under leaves or in holes.

The wolf spiders (*Lycosidæ*) are numerous in Britain, about thirty species, large and small, being already reckoned up: this is the family to which the famous Italian spider, the Tarantula, belongs. *Dolomedes fimbriatus* is one of our largest British species, occurring in fenny and marshy districts, receiving from its semi-aquatic habits the name of the raft spider. It is brown in colour with an orange band and white spots, and its raft is contrived of twigs, leaves, or grass secured by silk. Upon this the spider sits. As it floats those aquatic insects that come to the surface are attainable, but it also plunges at times into shallow water and runs over the surface. Land insects are hunted when the spider is not inclined to be nautical. Upon nearly every lawn the grey wolf spider (*Lycosæ saccata*) glides about, the females dragging about their balls of eggs during the autumn. Lastly I mention the *Salticidæ*, so called from their leaping powers; they make no web, securing flies and other winged insects by springing upon them. They have an oblong thorax and small abdomen. The brown and white *S. scenicus* appears everywhere, and chases its prey with the greatest coolness, unawed by the presence of human beings.—J. R. S. C.

MR. SIMPSON'S GRAPES.

MR. SIMPSON is needlessly sensitive about his Grapes, and under the circumstances I should have imagined he would have let his Edinburgh exhibit pass quietly into oblivion. I was requested to furnish a moderately full report of the Edinburgh Show, and in doing so gave these Grapes quite as much attention as they merited. In the reports published by two of your contemporaries no mention is made of these Grapes. Why? For my own part I have not a word to withdraw from that furnished in the report. The Grapes had been badly packed, were badly rubbed, and were not in good condition. If Mr. Simpson has read "SINGLE-HANDED'S" communication on the next page to that in which his own appears he will find my report substantially borne out. He mentions them as "not very good samples."

My opinion of the Grapes is this—and if Mr. Simpson had not desired my opinion certainly I would not have troubled him with it—that at the Edinburgh Exhibition they were amongst the worst examples of Grape-growing staged. The bunches of Gros Guillaume and Raisin de Calabre were quite straggly, with those long stalks to the clusters of berries which tell so plainly of the previous year's wood having been unripened. At the same time the thinning had not only been badly done, but too many berries had been removed, and the marks of syringing were so patent that these alone would have prevented them, if in other respects good, from taking a place as first-rate examples of Grape culture. I cannot conceive how Grapes, which were so unripe in the second week of September as to set on edge the teeth of an inquisitive official of the Society, could be pronounced good examples.

As to gardeners "not being impressed with the economy of the system," I have only to say that I discussed the subject with a number of gardeners, several of whom have taken high positions in fruit shows. Nurserymen, amateur cultivators, and proprietors of gardens were like the gardeners in expressing their astonishment that such Grapes should have been sent to a high-class show. One gardener who grows his Vines on cool treatment, on reading on the ticket accompanying the Grapes that they had been produced at a great saving in fuel, made this remark—"The fuel has certainly been saved at the expense of the Grapes."

I am not much impressed with the letters Mr. Simpson has received. His correspondents appear to resemble those who are continually trying gardening theories and never succeed in carrying out any of them. I am afraid something else was wrong with the Muscats, which would not set in a temperature of 75°, than unsuitable temperature. Let us hear from a gardener who has proved to the world that he can grow Grapes that Muscats will not set at a temperature of 75°, and that red spider is sure to follow, and the letters of your correspondent will have due weight. The gentlemen whose Vines "have borne good crops of Grapes hitherto" I would not take in evidence either.

With regard to Alnwick Seedling, from the same Vine as that shown at Edinburgh, taking a first prize at Sheffield a few days previous to the former Show, I have only to say that to me it proves that the gardeners round Sheffield want to brush up a little in Grape-growing. But why, Mr. Simpson, did you not enter the lists at Edinburgh, and carry the war to some effect into the "camp of the Philistines?" And now let me say that all our Grapes are grown at low night temperatures in the earlier stages of their growth. I have to thank Mr. Simpson for the hint he gave us on the point several years ago. It was a step in the right direction, and if followed out in a sensible manner very good Grapes can be grown.—YOUR EDINBURGH REPORTER.

PLANTS IN POTS v. PLANTED OUT.

WHILE visiting some great gardens in the south of Scotland lately, and trying to gather hints of value, we were much struck with the difference between many plants in pots and others in borders. In the long corridor at Floors Castle we could not help remarking the magnificently healthy specimens of Camellias and numbers of other plants permanently planted out in prepared borders of loam. In one house there were some dozens of robust, healthy, and clean Gardenias, very superior to those generally seen in pots. At the same establishment Azaleas and other greenhouse and also stove plants in pots, although in some instances enjoying whole houses to each kind, were only very ordinary; thus showing the superiority of the system of planting-out. Bananas planted out and enjoying a whole house were very fine.

It is a curious fact that plants in pots in large gardens are not often seen in first-rate condition. There are more reasons than one for this, but probably the chief one is that much of the work has to be entrusted to young men who are inexperienced and perhaps careless; hence potting is carelessly done and watering is carelessly done, with the inevitable results. Carefulness in potting and in watering may not be very necessary in the case of plants which only exist a few months, although even with them the result depends very much on these operations. Many people fancy that Orchids, for instance, and Heaths are difficult plants to grow; but when these are properly potted and watered the supposed difficulties vanish. An overpotted Heath or Orchid is almost sure to suffer from overwatering if the supply is not regulated with an intelligent forethought not always possessed by young men. In the case of the Heath, dryness is extremely liable to cut short the existence of the plant if it is the least root-bound.

These facts have often exercised men at the head of large establishments. When gardens are so large that the gardener cannot possibly supervise everything personally, fine specimen Heaths and other hardwooded plants are seldom seen. In comparatively small gardens, when, perchance, all the potting and watering is done by the master himself, we seldom fail to find better results than in larger establishments. We have one such in our mind's eye at this moment. It is a single-handed place in Midlothian, famous for having produced the biggest bunch of Grapes on record, and famous for much more, as competitors at local shows well know. A year or two ago we visited Mr. Currer at Eskbank—for to him we refer—and after having seen the most famous gardens in the neighbourhood we were inclined to pronounce Mr. Currer the "best gardener in the county," as we were assured he was by the person who advised us not to miss Eskbank. The secret of the whole was simply this: Mr. Currer had to personally attend every plant himself. Others equally enthusiastic, equally skilful, fail to reach any high standard simply because important work, such as potting and watering, has to be relegated to others who do not fully understand it, and who do not always recognise their responsibility.

It is not always the gardener in charge who is to blame. Sometimes the difference of a couple of shillings a week determines whether a labourer shall or shall not take the place of a more skilful but perhaps less costly man. Not long ago we experienced a case of this kind. A more industrious labourer never worked in a garden; what he lacked was not zeal, but knowledge. In wash-

ing the pots in our Cattleya house he managed to break off several pounds' worth of young shoots in spite of all warning. The sacrifice was greater than the difference in wages for a year or two. It is the same when we have to engage a young or a not first-class workman, simply because the wages are screwed down to the last shilling.

This by the way, however. We were about to say something further upon potting. The subject has been discussed before, and we daresay most practitioners are agreed that the planting-out of a large number of plants, when that is practicable, secures better results than the pot system. It is, however, not practicable in small gardens, and neither is it so necessary; still, in these, pots are too much used for plants when they are in the juvenile stage. Striking cuttings in small pots and pricking out small seedlings into pots is, we consider, a mistake. For small plants and cuttings sandy soil is generally used. When this is placed in spoonfuls into small 60's it requires much mis-spent labour to prevent it becoming continually overdry, and much skill to keep it healthily moist. It is a thousand times better to place small plants the necessary distance apart in boxes. Calceolarias, Cinerarias, Primulas, Pelargoniums, Fuchsias, and all other soft and, in many instances, hardwooded plants, thrive much better treated thus, and if the soil be porous and flaky the plants may be lifted with fine balls of roots, and transferred at once to pots 6 inches wide. Young healthy plants will soon fill the pots with roots, and the plants will grow with a freedom never known by those nursed in thimblefuls of soil.

We think a large number of plants suffer from being overpotted. We are decidedly in favour of growing plants in the smallest pots possible, for we find it is easier to do so. Even many gross-feeding plants are spoilt by being overpotted. We do not advocate keeping plants rootbound, but decidedly prefer that evil to the opposite one. When a pot is only half filled with roots it needs some skill to keep the soil sweet, and sweet soil is necessary to health.

It is surprising how plants will thrive in small pots if care be taken that the soil be never dry. We have had plants of Fuchsias 6 to 7 feet high and 3 to 4 feet through at the base, which bloomed for six months in 10-inch pots. Rootbound they certainly were, but souring was impossible, and we had them growing robustly by keeping the soil continually moist with weak sewage water. To secure this bi-daily waterings were necessary, but the results justified the works. By the same means we have Petunias in 7-inch pots on trellises with 16 square feet of surface densely covered with flowers for months. Even such gross-rooting plants as Abutilons may be kept growing and flowering freely all summer in pots that were filled with roots in spring. Lapagerias, Camellias, Azaleas, Pelargoniums, Lilliums, Pancratiums, Eucharises—indeed almost every plant, derives benefit from such treatment. We grow some dozens of the varieties of Cedo Nulli Chrysanthemums in 6-inch pots, and astonishing plants they are. Our conservatory is so shaded that ordinary varieties in ordinary pots do no good; but the Cedo Nullis flower magnificently under the treatment described. It is not always that we dare use sewage water in the conservatory. It may be of some use to many readers similarly situated to say that sulphate of ammonia is found of great benefit. A pinch of it in a canful of water has a wonderful effect in exciting and maintaining vigour for a time. It should not, however, be relied upon to produce permanently good results with valuable plants that are to live for years.

Planting out Chrysanthemums, Solanums, Callas, and others for winter use saves considerable trouble when large quantities of plants are necessary. In small gardens it sometimes does not answer. We have given one reason why it does not succeed with us; but there is another. Planted-out Chrysanthemums make enormous roots, which must be accommodated with large pots, and these look very bad in small houses. For the sake of appearances we find it better to have neat little bushes and abundant flowers. However, this is a matter that each must suit himself in. There is one thing, however, certain—namely, that large conservatories and long corridors are better when furnished with plants growing in properly made borders. Well-made and drained borders are not easily soured, even by careless watering, and the consequence is that large numbers of plants so grown attain a condition far superior to those in pots.—SINGLE-HANDED.

VANDA TERES IN A TROPICAL CLIMATE.—A correspondent of the *Gardener* writes as follows concerning this Orchid:—"When I was in Singapore I found Vanda teres was brought down from Burmah in trading vessels and sold to the residents as a popular hardy flower for their gardens. I need scarcely say that Singapore possesses a tropical climate—a mean of 82°, I believe—

so that all our Crotons and Dracaenas and other stove shrubs from both hemispheres grow there in the open borders and beds just like Phloxes and Delphiniums here in England. I was in the Botanical Gardens out at Tanglin one day, and saw in the distance a mass of flowers dancing in the hot wind. Seeing numerous stakes to the plants, and their lilac flowers, they reminded me of a mass of Sweet Peas in a sheltered home garden. 'What is the pretty mass of Lilac yonder?' I asked. 'Oh,' replied the Curator, 'that is Vanda teres!' Planted out in the ordinary red loam of the island, it grew up the stout stakes, adhering by its numerous aerial roots as Sweet Peas or Vines cling by their tendrils: there it was in glorious flower, masses of it 7 feet in height and wide in proportion—a sight to delight anyone who only previously knew of Vanda teres as cramped in a pot, seorching and starved under a glaring roof of glass."



KITCHEN GARDEN.

CELERY should now be well carthed up, so that as little of the stems as possible will be exposed to the influence of frost. The stalks should be drawn together, and the soil made close about them with the hands, keeping the soil out of the centre of the plants. That ready for use will be more susceptible of injury, and if it suffer from frost will decay rapidly, hence the necessity of providing a good stock of dry litter or fern for protection when necessary, not only for this but also for Lettuces and Endive. Plant out Lettuce to stand the winter. Complete also pricking off Cauliflowers into handlights or frames, and guard against the depredations of slugs by dusting with quicklime, soot, or dry wood ashes. Plant the principal crop of Cabbages for spring or early summer use, encouraging the growth of these and winter Spinach by running the hoe between the rows. Cauliflowers and autumn Broccoli should be lifted and stored away, or the large outer leaves turned inwards over the heads will protect them from several moderate frosts.

The main crops of Beet, Carrots, Salsafy, and Scorzonera may now be lifted, being careful not to cut the tops too closely, and, after remaining a few days in an open shed to become moderately dry, store them in damp sand in a cool moist position. In lifting and trimming Beet it is necessary to avoid damage, otherwise the colour and quality will be injuriously affected. Keep Brussels Sprouts, Broccolis, and winter Greens free from decayed leaves, so as to expose and harden them as much as possible.

In the frame ground Cauliflowers and Lettuces should be kept exposed as long as the weather continues open, but all should be in readiness for protecting them in case of frost. These vegetables should have all the air possible whenever the weather is favourable from now up to transplanting in spring.

Forcing Department.—Tomatoes planted for winter and spring fruiting must have attention in thinning the shoots, stopping, and training. Avoid overcrowding, affording a temperature 55° to 60° at night. If grown in pots tepid liquid manure should be supplied copiously. Continue sowing French Beans in pots according to the accommodation and demand, keeping them near the glass, moderately ventilated, affording tepid liquid manure, and a night temperature of 60° to 65°. Pits or houses containing late crops of these will need a similar temperature, and a little ventilation constantly.

FRUIT HOUSES.

Peaches and Nectarines.—The fruit is nearly all gathered in late houses. If there is any doubt about the ripeness of the wood fire heat should be given by day with a free ventilation, turning off the heat at night. Remove the bearing wood of the current year; and if the wood for another season be at all crowded it should be well thinned, leaving as much as will be required for next season's bearing, with full exposure for the foliage to light and air. Where young trees are growing luxuriantly and have shown a disposition not to set and stone well make a trench a few feet distance from the stem,

removing the soil down to the drainage, and cutting through all roots. Leave the soil out of the trench for about a fortnight, when it should be returned and well rammed down; this will encourage the ripening of the wood, and mostly result in the fruit setting and stoning satisfactorily the next season. Although a lessened supply of water will be needed now, the border inside must not be allowed to become dry, or the buds will be imperfectly formed and fall in quantity later on. Push forward the cleansing of the houses and trees, and where the roof lights are moveable it will be an advantage to expose the tree to the invigorating influences of the atmosphere during the autumn months, otherwise ventilate to the fullest extent, keeping them as cool as possible.

Cherry House.—Cherries are not nearly so much grown under glass as they should be early in the season for dessert when fresh ripe fruit is scarce, affording not only variety but a desirable addition during April, May, and early June. Cherries must have abundant ventilation, and the trees should be accommodated with a trellis about a foot distance from the glass. A house of about 12 feet width is ample, the back wall being also utilised, the front trellis not extending to the top of the house within 3 feet. The top and bottom lights must be made to open the full length of the house and upwards or outwards, so as to admit of air being given under any circumstances without admitting rain. A 6-foot width of border will suffice, and 4 feet for the back, which will leave 2 feet for pathway. Confine the roots of the trees to their respective borders, so as to allow of the lifting or root-pruning of individual trees as may be necessary. The border should be inside the house and the roots confined to it, as the trees have to make their growth when external conditions are not favourable. A 2½ feet depth of border is sufficient, having 9 inches of drainage, and drains to carry off superfluous water. Good turfy loam with the addition of a tenth of old mortar rubbish affords the most suitable compost, which should be made firm. The trees most suitable for planting are those that have been trained to a wall for three or four years. They may be lifted carefully and planted as soon as the leaves commence falling. Empress Eugénie, May Duke, Black Tartarian, Elton, and Governor Wood are good varieties, especially Black Tartarian. The roof lights of Cherry houses should be moveable. The lights removed from this structure must not be replaced for another month or six weeks. Trees in pots can now be examined, potting those that require it, and for the others surface-dressing the soil will be sufficient.

PLANT HOUSES.

Stove.—*Ipomœa Horsfalliæ* and other climbers that flower through the winter must not have much pruning; but other climbers, such as *Passifloras*, which flower in summer, should now be cut back freely, so as to admit light to the plants beneath them. Some *Passifloras*, however, are still flowering, notably *P. princeps*, *P. kermesina*, *P. Madonna*, and *P. calycina*, and too much of the growths must not be removed. *Allamandas* as roof climbers are flowering splendidly and will continue to do so until a late period, and are much appreciated at this advanced season, being duly supplied with tepid liquid manure. Plants intended for early flowering should have very little water, only affording a little when the leaves flag, keeping them near the glass in a warm well ventilated house, so as to ripen the growth. *Stephanotis* must not be pruned at this season, and should only have water to prevent the leaves becoming flaccid; trained on the roof the growth will mature perfectly. Any plants that have completed growth early and have been rested a time will, if encouraged by a brisk moist heat, start into growth; but to ensure flowering the shoots must be grown near the glass. Gardenias that have been forwarded early in the season will expand the buds freely in a rather moist heat of 65° at night and 70° to 75° by day. *Clerodendron Balfourianum* is one of the most accommodating plants in existence, and may be had in flower at any season by subjecting it to a system of alternate growth and resting. Plants that flowered in May or June, and have since completed their growth and been rested for a few weeks by keeping them drier, will, upon being placed in heat, again produce abundance of flowers. *Franciscea calycina* major when placed in heat grows and flowers freely, and is very acceptable as giving a shade of colour (violet) not common in flowers at this time of year, the only other plant of the colour flowering naturally

at this season being *Lasiandra macrantha*. *Pentas carnea* and *P. kermesina* are seldom out of flower, and young plants kept closely stopped so as to induce a bushy habit are useful for winter flowering.

THE BEE-KEEPER.

DEVELOPMENT OF QUEENS AND BEES.

"How long does it take to rear a queen from the egg—that is, till she is ready to fly? How long is it, after she emerges from the cell, before she will take her wedding flight?" The above questions are answered as follows in the *American Bee Journal*:—

Having passed three days in the egg and five in the larval state the workers close the cell, and the future queen commences to spin her cocoon, which occupies about a day. Then, apparently exhausted by her labours, for three days she obtains complete repose, and on the sixteenth day, as a perfect queen, she emerges from the cell. The strength of the colony and the character of the season may vary it a day or so.

When the embryo queen is nearly mature—within twelve to sixteen hours of emerging—the bees begin to demolish the exterior compartment, or extension of the top of the cell, reducing it to a level with the outer edge of the cap of the cell proper. The convex cap being then very prominent is very liable to be injured, and to protect it from injury



Fig. 56.
Larva of Bee.

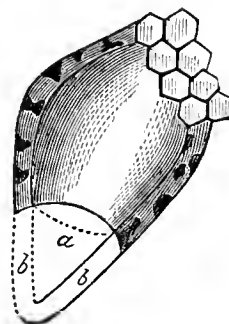


Fig. 57.—Finished Queen Cell, sealed over. a, convex cap; b, b, the extension of the cell.

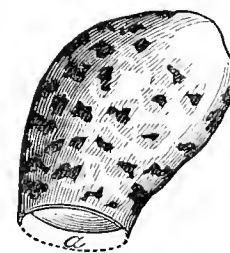


Fig. 58.—Ripe Queen Cell, with the exterior compartment removed. a, the convex cap.

the bees coat it with a fresh layer of wax, making it nearly as thick as the walls of the cell.

The young queen pierces a hole through the edge of the cover with her mandibles, and then makes a circular cut along its periphery. Being nearly detached from the cell walls the cap drops, opening a circular passage through which the young queen emerges.

From the egg to the queen emerging from the cell takes sixteen days. She is then a virgin queen, and for five or six days she moves around in much the same manner as a worker bee, helping herself to honey from uncapped cells.

About the fifth day, if the weather is pleasant, she may be seen crawling about the entrance of the hive, and if the next day is propitious she may try her wings some distance from the alighting board. She will appear somewhat excited, but after a while she will mount up and circle around, increasing the distance each time, to mark the hive, and insure a safe return from her wedding flight.

In the warmest part of the afternoon, when the drones are flying, she will spread her beautiful wings and soar into the air to mate with a drone. If successful she will bear the marks of it on her return; if not, she will, after a time on the same day, come out again and again until it is accomplished. She will then return, going quietly into the hive, and in a day or two she will commence to lay; so that generally, from eight to nine days after emerging from the cell, the queens are laying. Should the weather be unfavourable, and she fails to meet the drones within about twenty days, she will have failed in the object of her existence and become only a drone-producer.

The drone passes three days in the egg, about six and a half in the larval state, and changes into a perfect drone in twenty-four or twenty-five days, counting from the egg.

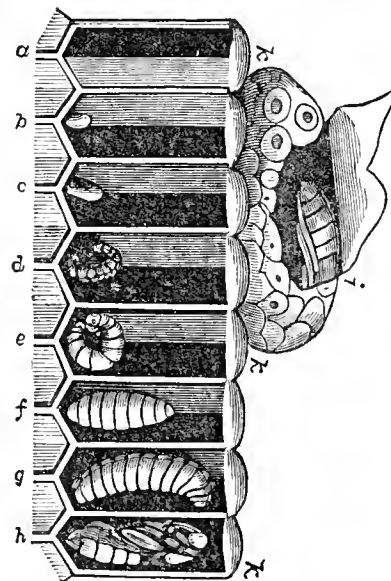


Fig. 59.—Eggs and Brood.

a, Empty cell; b and c, eggs; d, e, f, and g, various stages of the larva; h, pupa; i, pupa or queen in queen cell; k, k, caps.

The worker, after passing about three days and a half in the egg, is hatched—a small white worm, grub, or maggot—and is called larva (a Latin word signifying a mask, for the bee is concealed or hidden in that state). It remains in this state about five days, and then the bees seal the cell over; the larva then spins around itself a silken covering, called a cocoon, which occupies about thirty-six hours. In this third stage it is called a nymphe, pupa, or chrysalis, in which state it remains until the twenty-first day, counting from the time the egg was laid, when it emerges from the cell a perfect working bee, and is called an imago.

The cocoon left behind forms a lining to the cell, and for this reason it is best not to use the same breeding comb too long, for each cocoon left behind imperceptibly, but not the less really, diminishes the size of the cell for its future occupant, and prevents the bees from attaining their full development of size.

When the weather is cool or the colony weak, the development is retarded to a greater or less extent—the heat should be above 70° Fahr. for the best results. Both the workers and the drones on emerging from the cells are rather helpless, and are soft, downy, and light in colour.

The workers and drones spin complete cocoons, enclosing themselves perfectly, but queens enclose only the head, thorax, and first ring of the abdomen—evidently to provide for the means of being destroyed by a rival queen before emerging from the cell, should it become desirable to do so.

In the contemplation of this exceedingly interesting subject is found much food for thought and meditation; and for instructive lessons none can rival the marvellous transformations that insect life undergoes in its processes of development! The repulsive maggot of to-day may to-morrow be the active little fly, visiting leaf and flower in merry and sportive mood! The repugnant caterpillar of to-day may to-morrow, as a chrysalis, be decked with green and gold, awaiting its speedy transformation to the butterfly, of brilliant tints and gorgeous beauty.

This is not a whit more wonderful than are the transformations from the egg to the tiny larva, from the larva to the pupa, and from the pupa to the fully developed honey bee, with its wondrous instincts and marvellous habits! The student never ceases to wonder and admire as he turns over leaf after leaf of the "book of Nature" devoted to this interesting insect. Indeed, there is a fascination about the apiary that is truly indescribable; but even that richly rewards the apiarist for all the time and labour bestowed upon it. Every scientific bee-keeper is an enthusiast. The wonderful economy of the bee hive, from its very nature, presents to the thoughtful student both admiration and delight at every step!

CRUDE HONEY AND OTHER QUESTIONS.

If there are still some people unconvinced that bees make honey from the crude material found in flowers, and would like to have the question (if it is a question) settled, I would feel obliged if they would state what evidence would be considered satisfactory. I have both crude and perfect honey taken from my own hives in the house at the present time, and everybody that examines them needs no more evidence. If any society of bee-keepers, or any three persons competent to know the difference between perfect and imperfect honey, would like to see them, I will send them by post if they request me to do so. Since the introduction and use of the "American Slinger" in taking honey from combs, the fact that crude honey is very imperfect and will not keep cannot be too widely known, for wherever the Slinger is used the imperfect honey is first cast out, being more watery. In other respects the question has been considered of little practical importance, and few bee-keepers care to know whether honey is swallowed once or twice before it is stored up by bees.

Another question of no great practical importance has, like that of crude honey, received little attention from bee-keepers—viz., the question of late breeding. If queens continue to lay for a month or two later in autumn than is usual, do they commence to lay in the following spring as early as the queens that had ceased to lay some weeks sooner? Is a certain amount of rest necessary? In July some seasons queens stop laying, or otherwise the bees decline to set their eggs. In other seasons bees continue to breed till September. This is easily understood and explained; but it is the length of the time of rest or cessation of egg-laying that is the question before us. It is a question difficult to solve satisfactorily.

Only one more question will be mooted now. In bee battles every bee stung speedily dies. Does the bee that gives the fatal probe die too? In stinging another bee does it lose its sting? Those who use microscopes in their investigation may soon settle this question. The sting of the honey bee is barbed, and, generally speaking, sticks when used in stinging animals, and carries with it the venom bag. I have thought that in bee battles and bee and drone massacres the conquering bees did not lose their stings, and this appeared to me to be a singular phenomenon and wise arrangement, but my convictions may have been formed on insufficient evidence. In the massacre of drones worker bees are not found

among the dead. Unsuccessful attempts have been often made to unite swarms of nearly equal strength, and the loss of whole swarms has resulted. In such unsuccessful attempts the loss of life has been enormous, but we have not noticed that the victorious bees suffered much from their victories.—A. PETTIGREW, *Bowdon, Cheshire.*

DRIVING AND UNITING BEES.

It is a long time ago I last wrote you accounts of my experience in bee-keeping. I have been a wanderer since I broke up my apiary in Hertfordshire, but I have now begun to get some stocks together again in this place. So much has been done of late years to disseminate the knowledge of scientific bee-keeping, and so many converts have been made, that any information on the subject is now sought out, and when found gratefully digested, by hundreds of readers who a few years ago had looked upon a bee as an interesting insect perhaps, but a creature to be kept away at as great a distance as possible.

This is a country with many bee-keepers—in fact, there are few cottagers scattered about the forests, which stretch away from Horsham to within a short distance of Tunbridge Wells, who do not keep bees; but they are nearly all kept on the old dome-shaped skep and brimstone-pit system. Here and there are intelligent men who are becoming alive to the errors of the old school, and have already begun to walk in the new road of success and profit; but they are only a very small minority, and any number of bees can be had for a trifling bribe and the trouble of driving. I have just rescued eight such stocks and united them in bar-frame hives. All but one skep were driven with the usual ease and success; and it is about this skep I wish to say a few words, as something may be gleaned from my remarks to assist others who may meet with a similar difficulty, and may explain to a novice what would surely puzzle him if he met with such a case at the outset of his attempts at driving.

The skep in question belonged to a friend's gardener. I had promised to drive out the bees and to put the owner into the way of feeding up the rescued swarm. It was a prime swarm of the current season and very heavy. I gave the usual puff of smoke, turned up the skep after a few minutes, and sprinkled well with thin syrup; after a short interval fixed the empty skep over the stock, which was stood in a zinc pail, and began to drive the bees out. From the first I noticed a reluctance to run, but after some amount of tapping I got a goodly number to go up; still, I could hear and see lots of bees far down in the dome among the combs, and I could not get nearly all to come up either by tapping, blowing, or by the use of smoke. I began to look for a reason, and on examining the combs found that there was only drone brood. A drone crawled out from its cell while I looked, and scattered here and there were other drone cells capped or with drone hatching. There was only one solution now of the difficulty—the hive was either queenless or about to become queenless; and I ventured the opinion to those looking on, my friend among the number, that the queen was still alive but too feeble to run up, and therefore a certain number of faithful subjects were braving smoke and what to them must have been like an earthquake rather than desert their dying queen. Robbers from the other hive were now becoming troublesome, and I advised the removal of the stock to a more secure spot. I placed the bees I had driven out on their stand and took the skep into a building. Near the window I cut out carefully comb after comb until I found, as I expected, the old queen and a bunch of bees in the centre of the hive top. She was so feeble that she could not turn herself up when on her back, nor could she crawl up the side of the hive. I therefore killed her, and in the evening joined the bees to the other stock. The bees were exceedingly quiet, and the spectators gained, as they said, more knowledge of bees through this little difficulty than they would have done otherwise. Should any of your readers meet with similar reluctance on the part of the bees to leave their skep when driving it may perhaps be similarly accounted for.—P. H. P., *Crowborough, Sussex.*

TRADE CATALOGUES RECEIVED.

Boulton & Paul, Norwich.—*Illustrated List of Aviaries, Dog Kennels, &c.*

The Lawson Seed Nursery Company, Edinburgh and London.—*Catalogue of Trees and Shrubs.*

T. C. Schmidt, Erfurt.—*Catalogue of Immortelles, Dried Grasses, and Bouquet Papers.*

H. Cannell & Sons, Swanley, Kent.—*Catalogue of Winter-flowering Plants and Bulbs.*

Robert Mack & Son, Catterick Bridge, Yorkshire.—*Catalogues of General Nursery Stock and Roses.*

Cranston's Nursery and Seed Company, King's Acre, Hereford.—
Catalogue of Fruit Trees.
James Walters, Exeter.—Catalogue of Roses.



Erratum.—The name of Mr. G. Humphries, Kington Langley, Chippenham, as a voter in the Rose election, ought to have been placed in the nurserymen's instead of the amateurs' list, where it was inadvertently inserted last week.

Potatoes (H. M.).—Your crop is a good one if produced under the ordinary mode of culture, but is not extraordinary. We have known more than twice the yield when special attention has been given towards securing the best results.

Oranges Splitting (W. M.).—The trees have received a check of some kind during some period of the season, possibly during the hot weather of July, when the skin may have become firm and lost its elasticity, thereby being unable to expand, as the growth afterwards became more free. We are not sure, however, that we understand your letter, which is too brief to make the condition of the trees and the treatment they have received intelligible.

Distinguishing Iris Roots (J. P.).—The English and Spanish Irises can be readily separated from the German Irises, as the former have roundish bulbous roots, while the latter have rhizomes—that is, long, cylindrical, or irregularly formed brownish roots. You will not so readily separate the English from the Spanish, but the latter are generally the smaller, and are more slender in form.

Bottling Grapes (George).—The laterals on which the bunches are hanging are inserted in bottles of water, ordinary wine bottles being suitable, and placed in a slanting position so that the fruit hangs clear of the bottles. A room having a regular temperature of about 40° will do, but a few degrees more will do no harm, and a dark place is better than a light one. A very dry and too warm room conduces to the shrivelling of the berries; and on the other hand, if the temperature is very low, moisture is condensed on the fruit and its keeping property is impaired.

Large or Small Garden (J. P. of York).—We have not had the pleasure of inspecting the garden to which you refer, and are consequently unable to say whether we consider it a large or small one. The number of men employed is not always a criterion of the size of a garden. We know of gardens where a dozen men are kept not a quarter of the size of others where not half that number of men are employed. If you would like to write to Mr. Pettigrew, his address is Bowdon, Cheshire.

Striking Roses (J. Wilton).—You have been rightly informed; cuttings of nearly all Roses will strike if inserted in the open ground at the present time. Firm wood should be chosen, the portions that have borne flowers being usually suitable, and it is immaterial whether the cuttings are taken with a heel and cut smoothly across close under a joint. They may be about 9 inches long, two-thirds of the length in the soil, and one-third out. It is better to make trenches for them and then press the soil firmly round them; if thrust into the soil the ends are liable to injury by coming in contact with stones. If the soil is of a strong adhesive nature it will be an advantage if sand or gritty material is placed round the cuttings. The cuttings of last winter failed because they were inserted too late.

Fuchsias and Pelargoniums (J. B.).—You had better gradually reduce the supply of water to the Fuchsias so that the wood becomes firm and most of the leaves fall, then keep the plants in a cool temperature so as to give them a rest. About March place them in gentle heat after pruning them into the form required, and when they have fairly commenced growth turn them out of the pots, removing most of the old soil from the roots, and repot in fresh compost, then by syringing regularly in fine weather, and watering carefully, you may have them blooming freely by the time you name. If the Pelargoniums are Zonals you may keep them steadily growing in a light position in a temperature not exceeding 50° at night; if they have not a light position they will be kept drier and cooler, as growth made in the absence of light is always unsatisfactory. If your plants are show varieties they should be wintered on a shelf near the glass in a night temperature between 40° and 45°, watering the plants with great care.

Ventilating Greenhouse (F. M.).—Either of the modes of providing top ventilation will answer, and no one can so well tell you which method will be least expensive as the head carpenter you are employing. He will have no difficulty in giving you the close approximate cost of both methods. It is impossible for anyone to answer the question from your letter, as you do not even state whether you have rafters and framed lights or not. The old Vine is not likely to do much good; still, perhaps with the Deanery gardener's aid you may improve it. As a black Grape the Black Hamburgh is the best, and Foster's Seedling is the most likely white variety to succeed in the house. You may grow stone fruits in the house if the trees are not shaded, also Cucumbers in summer, but some skill and much attention are requisite in succeeding with many crops in the same house. Many plants will grow in the shade, such as Ferns, ornamental-leaved Begonias, Camellias and Azaleas. Bulbs and all kinds of spring-flowering plants can also be grown before the Vines and trees shade the house too much. You had better obtain our "Garden Manual," post free, 1s. 9d., and our "Greenhouse for the Many," post free, 10d.

Culture of Pentas carnea (K. D.).—You will not find this plant difficult to grow successfully, provided the temperature of a stove or intermediate house can be secured. The compost should consist of light turfy loam, peat, and leaf soil in equal parts, with a plentiful admixture of sand. The pots must be thoroughly drained, as water should be freely supplied when the plants are growing. It is an old favorite in many gardens, owing to the flowers being produced in the dull season; though with judicious management the plants may be had in flower during the greater portion of the year. The specimen you send is a spray of *Sibthorpia europæa*, a hardy plant native of this country, and found in wet shady positions. A very pretty form with variegated foliage is in cultivation.

Peaches and Nectarines (Tregening).—The space being sufficient for six trees, four Peaches and two Nectarines, will perhaps suit you. Good Peaches

for your purpose are Hales' Early, Grosse Mignonne, Royal George, and Belle-garde; good Nectarines, Lord Napier and Violette Hâtive. If the soil is fertile and the water passes through it freely it will not be necessary to incur much expense in making a border; the site, however, must be well drained naturally or artificially. Order the trees now, and request that they be sent as soon as ready, and plant them as soon as they are received. The roots must be spread out quite straight, and covered about 3 inches deep with fresh loam, working it well amongst them, and on the surface of the soil over the roots, and a foot beyond them, spread a layer of half-decayed manure 4 inches thick to exclude frost and enrich the soil. This will be better than mixing manure with the soil. Do not secure the trees tightly to the trellis, as the border may settle somewhat, and the branches would then be injured; attach them loosely at first, then in the spring train them equidistant from each other, merely shortening any branches so as to secure well-balanced trees. Keep the house cool during the winter; even a little frost will not do harm to the trees, but must be excluded if you have plants in the house, and do not force to induce early growth in the spring, but let the trees start naturally. You had better cut off at once two-thirds of the growth from the top of the Vines to which you referred, and the lower growths, on which you must depend, will be benefited and form stronger eyes. We shall have pleasure in answering a letter at any time when you need information.

The Mango (W. X. W.).—The fruits which you state you have recently seen in Covent Garden Market are Mangoes, the produce of an East Indian tree allied to the *Rhus Cotinus*, so well known in English gardens. The tree is 50 feet high, with a spreading top, and when in flower is not unlike the Sweet Chestnut. The fruit, when fully ripe, is oval or somewhat kidney-shaped and flat, varying in size from that of a small Apple to a goose's egg; of a yellow or reddish colour, speckled with black, and filled with a fine agreeable juice. Some are full of fibres, and the juice runs out of these on cutting, or with a little handling; but those which have few or no fibres are much the finest; they cut like an Apple, but are more juicy, and have a rich sweet-perfumed flavour, accompanied with a grateful acidity. It is eaten without any preparation, except taking off the rind with the fingers or a knife, and is esteemed a very wholesome fruit, superior to the finest fruits of India, with the exception of the Mangosteen and some of the finest Pine Apples. Gentlemen within the tropics eat hardly any other fruit in the hot months; but if no wine be drunk with it the Mango is apt to produce boils, at least with new-comers, which are, however, conducive to health. Jellies, preserves, tarts, &c., are made from the unripe fruit in India. Preserved in sugar, it is not unfrequently served up at the tea-table. When unripe, it is very sour; and in this state boiled with sugar, butter, and eggs, it yields an acid juice that tastes like boiled Apples or Gooseberries. The Javanese boil the unripe fruit in brine, which taste and are used as Olives; others boil them and steep them in vinegar and pepper to eat with meat like Cucumbers. Much of the unripe fruit comes to Europe in the form of a pickle. There are several other species of *Mangifera* which produce eatable fruit, but they are all inferior to even the worst of *M. indica*. *M. sylvatica*, besides being eaten, is dried by the natives of India and kept for medicinal purposes. The fruit of *M. oppositifolia* is the size of a small pullet's egg, and is universally eaten in Burmah.

Names of Fruit (H. R. J.).—We are only able to identify three of the Apples; 1, Round Winter Nonsuch; 4, probably Alfriston; 6, Ross Nonpareil. (S. B.).—1, Cellini; 2, Vineuse. (A. B.).—1, Fearn's Pippin. We cannot name the others from such unsatisfactory specimens. (H. H.).—1, not known; 2, Court of Wick; 3, Birmingham Stone Pippin. (Reader).—1, The Apple is Kerry Pippin; the Pear is Flemish Beauty. (T. R.).—Pears: 1, Verulam; 2, Ne Plus Meuris; 3, Beurré Mortefontaine; 4, Beurré Hardy; 5, Napoleon; 6, Nouveau Poiteau. The Apples next week. (C. E.).—Blenheim Pippin. (G. W. F.).—1, Braddick's Nonpareil; 2, not known; 3, Reinette Diel; 4, Franklin's Golden Pippin; 5, Dumelow's Seedling; 6, Lord Lennox. (G. S. E.).—1, Cox's Orange Pippin; 2, Dumelow's Seedling; 3, not known; 4, Blenheim Pippin; 5, Blenheim Pippin; 6, Brownlee's Russet. (C. Wood).—Lewis's Incomparable. (Ramalho).—1, Pitmaston Pine Apple. We do not know Forfar Pippin, and therefore the name may be correct. You have an old edition of the "Fruit Manual," and the last is out of print. (Bickley).—Court Pendu Plat. (O. McA.).—Pears: 1, Jargonelle; 2, Marie Louise, both apparently from late blossoms; 3, Glou Morceau. Apples: 1, Winter Colman; 2, Probably Tower of Glamis; 3, Edinburgh Cluster. (Leon).—Berries, *Rhamnus catharticus* (purgative). Apples: 7, Alfriston; 8, Cellini; 9, Flower of Kent; 10, Forge; 15, Golden Winter Pearmain; 18, Beauty of Kent. (G. F.).—Beurré Bosc. (E. L., Goddaling).—The wild fruit is *Pyrus torminalis*. Pears: 2, Chaumontel; 3, Beurré Rance. The other Pears are worthless, and must be wildings or Perry Pears. The Apple is Golden Reinette.

Names of Plants (E. M. G.).—1, *Taxodium sempervirens*; 2, *Libocedrus Doniana* (rather tender); 3, Too much withered to be determined, but it is probably a *Salvia*; 4, *Coronilla Emerns*; 5, *Crataegus orientalis*; 6, *Griselinia littoralis*. (G. P., Ilfracombe).—1, *Echeveria secunda glauca*; 3, *Cerastium tomentosum*; 2 and 4 were too shrivelled to be determined; 5, *Mentha Pulegium gibraltarium*; 6, *Sedum acre*; 7, *Diplacus glutinosus*. (W. R. N.).—1, *Hippophae rhamnoides*; 2, *Dracocephalum Ruprechtii*; 3, *Senecio pulcher*; 4, *Bouvardia elegans*. (X. R. T.).—1, *Aralia Veitchii*; 2, *Crataegus orientalis*; 3, *Viburnum Lantana*; 4, *Calceolaria bicolor*; 5, *Asplenium bulbiferum*; 6, *Pteris argyrea*; 7, *Croton volutus*. (Inquirer).—*Colchicum autumnale*.

Golden Syrup for Bees (H. M.).—Golden syrup is obtained by clarifying the treacle which remains after repeated crystallisations of cane juice. It is therefore almost entirely destitute of crystallisable sugar, and necessarily contains considerable proportions of certain mineral salts, and of the re-actions produced by the agents employed in the various stages of refinement. Even in its purest forms it seems to be repugnant to the bees, as they can scarcely be prevailed on to take it; and even though they may be compelled to live on it, it would in all probability be a fruitful source of diarrhoea. But when we know that much so-called golden syrup is now produced from glucose, and consequently contains quantities of sulphate of iron, arsenic, dextrin, and other substances poisonous to bees, we can only advise you to the greatest caution in experimenting with it. Though apparently cheaper than syrup made from pure sugar, the latter undoubtedly contains so much more real bee-food that, even though there were no objectionable qualities in it, golden syrup will be found dearer in the end.

COVENT GARDEN MARKET.—OCTOBER 12.

THE supply and demand remain practically the same as last week, but prices are a little firmer.

FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples.....	½ sieve	1 0	to 3 0	Lemons.....	per case	18 0	to 30 0
Apricots.....	doz.	0 0	0 0	Melons.....	each	1 0	2 0
Cherries.....	per lb.	0 0	0 0	Neetarines..	dozen	1 0	6 0
Chestnuts.....	bushel	0 0	0 0	Oranges.....	per 100	0 0	0 0
Currants, Black..	½ sieve	0 0	0 0	Peaches.....	dozen	1 0	2 0
„ Red.....	½ sieve	0 0	0 0	Pears, kitchen..	dozen	0 0	0 0
Figs.....	dozen	0 6	1 6	„ dessert.....	dozen	1 0	2 0
Filberts.....	per lb.	0 0	0 9	Pine Apples....	per lb.	3 0	5 0
Cobs.....	per lb.	0 0	0 8	Strawberries...	per lb.	0 0	0 0
Gooseberries....	½ sieve	0 0	0 0	Walnuts.....	bushel	0 0	0 0
Grapes.....	per lb.	0 6	4 0	ditto.....	per 100	0 0	0 0

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2 0	to 4 0	Mushrooms.....	punnet	1 0	to 1 6
Asparagus.....	bundle	0 0	0 0	Mustard & Cress..	punnet	0 2	0 3
Beans, Kidney....	per lb.	0 3	0 6	Onions.....	bushel	3 6	5 0
Beet, Red.....	dozen	1 0	2 0	„ pickling.....	quart	0 0	0 5
Broccoli.....	bundle	0 9	1 6	Parsley.....	doz. bunches	3 0	4 0
Brussels Sprouts..	½ sieve	0 0	0 0	Parsnips.....	dozen	1 0	2 0
Cabbage.....	dozen	0 6	1 0	Peas.....	quart	0 9	1 3
Carrots.....	bunch	0 4	0 6	Potatoes.....	bushel	3 9	4 0
Capsicums.....	per 100	1 6	2 0	„ Kidney.....	bushel	4 0	4 6
Cauliflowers.....	dozen	0 0	3 6	Radishes.....	doz. bunches	1 6	2 0
Celery.....	bundle	1 6	2 0	Rhubarb.....	bundle	0 4	0 6
Coleworts.....	doz. bunches	2 0	4 0	Salsafy.....	bundle	1 0	0 0
Cucumbers.....	each	0 4	0 6	Scorzonera.....	bundle	1 6	0 0
Endive.....	dozen	1 0	2 0	Seakale.....	basket	0 0	0 0
Fennel.....	bunch	0 3	0 0	Shallots.....	per lb.	0 3	0 0
Garlic.....	per lb.	0 6	0 0	Spinach.....	bushel	3 0	0 6
Herbs.....	bunch	0 2	0 0	Turnips.....	bunch	0 4	0 0
Leeks.....	bunch	0 3	0 4	Vegetable Marrows	each	0 0	0 1



POULTRY AND PIGEON CHRONICLE.

CONTINUOUS CORN-GROWING AND CLAY FARMING.

(Continued from page 324.)

ANOTHER gentleman of great experience in agriculture (Mr. Clare Sewell Read, of Honingham Thorpe, Norwich, Norfolk) gives the result of his experiment in continuous corn-growing in an article published in "The Squire," September, 1881. Mr. Read says, "For some years having successfully grown Barley after Wheat upon friable land, I thought I would try my hand at continuous corn-growing upon a clay soil in Norfolk. A compact little holding of 166 acres lay vacant within a mile or so of this farm, Honingham Thorpe. I hired it upon a long lease. It was about Christmas, 1873, that I entered on the farm. There were only 10 acres of Grass. About 40 acres of the arable land was good working soil; the rest was a very stiff loam resting upon a bed of impervious clay. I set to work at once. The stiff soil was all under-drained, generally 10 or 12 yards apart and 3 feet deep. The last draw from the bottom of the drain, being full of chalk nodules, was thrown on the surface. I thought that this stiff soil, with its calcareous clay subsoil, was just the soil for continuous corn-growing. I had often inspected and diligently studied the Rothamsted experiments, and I saw through them an endless vista of consecutive Barley crops on my new farm. By the advice of Dr. Voelcker the mineral phosphate was applied when the grain was sown, and the Wheat was top-dressed with nitrate of soda in the spring. The rest of the fallow land was sown with Barley, mineral superphosphate and nitrate of soda being harrowed-in with the seed. For two years the dressings answer well, but in the third they seem to lose their efficacy, and the land shows signs of being tired of corn-growing; but when the season has been favourable I find the land refuses to answer to the whip as it does at first. The corn not only grows weaker, but a great deal turns white before it ripens, and produces hardly any grain; while if the dressings are increased the straw is flaggy and weak, and is sure to lodge with the first pelting rain. After a long series of corn-growing the land appears very kind for Clover. In 1880, with one year's crop of Clover, I grew 5 quarters of Wheat, while

the other corn, after repeated cereals, was a most ordinary crop. I have attempted nothing new; I only tried to follow the teaching of others. With Mr. Lawes for my pattern and Dr. Voelcker for my guide I could not be far wrong; but the moral that I draw from my farm clay is (after confessing the fact that growing two white straw crops in succession is highly advantageous on many soils), that the extent of land adapted for continuous corn-growing by the aid of light manures is more limited than some recently published experiments would lead us to imagine."

This statement of Mr. Read's is not quite satisfactory; first because, taking Dr. Voelcker as his guide, we expected to have had an analysis of the soil. This, however, is shown to a certain extent by the fact that this impervious clay contained chalk nodules in the subsoil, and this may have induced the belief that they contained carbonate of lime to a great extent, but it is doubtful whether they contained but very little, if any, of the chalk constituents to an appreciable extent, having been from time immemorial drawn upon by the deep-rooting plants, cereals, and weeds, thereby reducing them to a mechanical manure only. We are therefore obliged to think that this soil was actually deficient in chalk, and that the crops spoken of as having turned white before ripening arose from this cause. In the absence, however, of any analysis these crops, which showed a weak and flaggy straw and yielding badly, were caused by the absence of the necessary plant food required to bring the crop to maturity; it may be therefore in consequence of the manures applied being deficient in some respects, and which would have been evident to a practical man if an analysis of soil has been afforded us. The fact that Clover lea produced a valuable crop of Wheat as compared with land sown after a succession of cereals goes far to prove that the decaying roots of the Clover contained manure sufficient, both in kind and quantity, but that the ordinary manuring for the cereals did not. We must therefore assume that Mr. Read's experiment was not carried out with the same prospect of success as those which were accomplished by Messrs. Prout and Middle-ditch, in consequence of potash and other essentials not being found or made available by tillage in the soil, or applied by hand manures in quantity sufficient to yield a full crop. We are induced to believe this because we had land upon our farm which had produced a succession of valuable crops of every kind for a period of sixty years without the application of any manure; but upon an analysis of the soil the whole matter was explained, because adjoining land of a similar appearance of the clay would not produce without the usual applications of farmyard manure, &c., the latter being deficient in potash chiefly, which was found in abundance in the former.

We must now endeavour to turn these experimental farms and their practices to the home farmer's benefit, and in doing this we will take as an example a farm of 300 acres to illustrate how far corn-growing can be carried out beyond the four-course rotation with advantage. On a home farm of this extent of arable, with some parkland and pasture, we shall require some roots for winter feeding and fattening of cattle and sheep, and the rotation we propose is that 100 acres be sown with Wheat, autumn-fallowed after harvest, and prepared by steam culture for Lent corn, either of Barley or Oats, according to circumstances of soil and season. Thus we dispose of two-thirds of the arable land; and as it is a three-course rotation we advocate the third course may be various, say 20 acres of Clover seeded in the early white Oats, Wheat, or Barley, 20 acres of Mangolds, 10 acres of Beans, 10 acres of Peas, 10 acres of Vetches, followed by Turnips or Rape; 10 acres of Cabbage of sorts, 10 of early Turnips and Swedes in equal portions, 10 acres of Carrots, White Belgian and Red Intermediate in equal quantities. This is a valuable rotation if rightly understood and carried out, the cereals and pulse to yield the chief profit of the farm by sale of the crops will extend over 220 acres; the other being fallow crops to the extent of 80 acres being composed of roots, &c., for stock-feeding. When properly prepared and cared for during growth these will leave the land clean, and thus lay the foundation for the two following cereal crops, the Wheat being seeded all out of fallow except the 20 acres following the Clover, which portion may easily be found clean and free from Couch may be autumn-fallowed, as before stated, for either Barley or Oats. The chief merit of a rotation of this kind is the extent and value of sale crops, and yet maintaining the land in a clean and productive state, the said crops to be manured by yard manure as far as it will go, but supplemented by artificial manures to the value and extent given in the account of Mr. Prout's farming, say 50s. per acre. This can be realised in most districts by the sale of straw, so that the cost of every acre for manure is furnished by the straw alone, except the portion required for litter of cattle pens and yards, in which case the manure arising from the straw and cattle feeding and fattening will prove a good change of

manures by varying the application of dung and hand manures alternately.

In practice we have found for many years that in a continuous and close system of cropping, owing to the frequent ploughing and opportunities afforded for forking-out any Couch, the land was kept perfectly clean by horse labour only, yet it is a matter of great importance that steam should be the chief power employed, and the horses reduced in number. It is not only the cost to be considered. The effect of steam culture, which can be effected within a limited time, and in some seasons in particular it is really the broad basis of profitable agriculture, enabling the home farmer to carry out any possible system and rotation of cropping, even with the hindrance of occasional untoward seasons such as have prevailed for several years, especially that of 1879.

These observations have been made as applicable to the home farm when it is connected with park and pasture land. We must now, however, refer to a system of sale crops entirely upon arable land alone, which may be practicable in many districts when applied to farms in hand other than the home farm, but especially where situated near to railway stations, provincial towns, and populous villages. A rotation may then be adopted as follows:—Upon farms of 300 acres (or farms of any other size in like proportion) say 100 acres of Wheat, for sale both of straw and corn; 100 acres of Lent corn, for sale both of straw and grain; also 100 acres consisting of root and pulse crops, including vegetables, sold green or saved for seed, such as Potatoes, Beans, Peas, Cabbage, Cauliflower, Broccoli, Carrots, and Mangold; also a portion of Clover, alternated in growth with Giant Saintfoin, to be cut for hay or saved for seed; say 10 acres early Potatoes, 10 acres late Potatoes, 20 acres Clover or Giant Saintfoin, 10 acres of Cabbage of sorts, 10 acres in Carrots of sorts, 10 acres Mangold, 10 acres of early or late Cauliflower or Broccoli, 10 acres of Beans, and 10 acres of Peas. In such a rotation we have the opportunity of alternation of any of these or other similar crops without disarranging the system. The constant tillage in connection with it will with ordinary care keep the land clean. With respect to manure we advise liberal dressings of artificial manures, varying in value from 50s. to 60s. per acre per annum, notwithstanding we are told by market gardeners and others that such cropping cannot be carried out without the use of town or stable dung. We, however, deny this *in toto*, as the result of our experience; but that artificial manures, including chalk or lime judiciously selected and applied, are equal to any system of cropping on loamy soils, however varied or complicated. In conclusion we ask the home farmer to consider that the cereals may be varied and taken in accordance with the circumstances by which he may be surrounded, for when the season may be adverse to the sowing of autumn Wheat some land may be left over for Lent corn, either Barley, Oats, or spring Wheat; in fact, the possible variations and alternations are almost endless without vitiating the system.

WORK ON THE HOME FARM.

Horse Labour.—This will now consist of drilling Wheat upon the chalk hill farms in the most exposed situations first; on the strong flat-lying lands the seeding of Wheat should be done certainly not later than the 20th of October; on the mixed soils on the vale farms—such as gravel, sand, and dry loamy land—the sowing may be deferred until the last week of October and the first week in November, especially if it is Clover lea preparation, or early roots, or Rape fed off by sheep. On lea ground, or on any preparation where the land is clean, the usual distance between the rows of Wheat may be adopted; but on cold heavy land it should always be drilled at 10 or 12 inches apart, so that horse-hoeing in the spring may be effectually carried out. After a mild and wet winter the Wheat plant often looks weak and sickly, and weeds may threaten to injure the growth. Nothing, therefore, will be so likely to improve the crop as a horse-hoeing which will effectually break the surface. The quantity of seed per acre for Wheat is still a vexed question, and it is likely to remain so when we consider that the period of sowing, the soil and preparation, and climate must each have some influence on the question of the quantity of seed. The sorts of Wheat now in use are numerous, and the selection should depend upon the district in which the home farm is situated, and we also recommend the sowing of new and approved varieties, such as Hallett's Pedigree of sorts, Champion White from Reading, Berks; Rough Chaff from Essex, Nursery from Sussex and the fenlands of Cambridgeshire, Fenton White from the northern counties and the Lothians of Scotland, Morton's White from Gloucestershire, the Golden Drop Red Wheat from the chalk hills of Hants, Berks, and Oxon. These sorts offer a good opportunity for change from different districts. Some of them, however, are held for high prices, in which case it may be well to purchase only a few sacks, and use the increase in the future if found suitable for soil and climate. Very early sowing has been recommended by some farmers, sowing only a bushel per acre of seed, or less in the month of September, in order that it may tiller out and fill up a thick plant early in the spring. Upon many well-managed farms, however, early sow-

ing would be attended with various practical difficulties, much inconvenience, and derangement of the usual mode of culture and sheep-feeding. For instance, if all the Wheat on the home farm was to be sown, drilled, or planted in the month of September how could any autumn cultivation for future root and spring crops be effected? and how could the different crops preparatory for Wheat be cultivated following such crops as Potatoes, Turnips, and Rape, which will be in process of digging and feeding-off by sheep during the months of October and November upon dry soils on the vale farms? What is the advantage of saving a bushel of seed Wheat per acre compared with the benefit to be derived from various important items of tillage, sheep-feeding, &c., being done in due season?

Hand Labour.—Hedge-trimming should be finished, cutting wood and bushes in the woodlands or hedgerows may now be done, and making dead hedges commenced by using these materials. Men, women, and boys will be employed in gathering Potatoes behind the lifting plough and frame. The odd horse and man will be engaged in cutting up Clover and the grasses which have grown up in the Oat and Wheat stubbles, for since the rains in August the young Clovers in various instances have sprung up like magic, affording good green fodder for horses and other cattle, and as the season promises at present it may be continued as we have often done in the month of November.

Live Stock.—The wether sheep now eating-off early Turnips and Rape should be encouraged with an allowance of half a pound of oilcake per day, or 1 lb. of cotton cake, until the nights get longer, when they should receive hay or hay and straw chaff in addition. The leaves of Mangold will now be available for sheep and cattle, as it is now time to secure the crop, especially upon cold or strong land, in order that the carting may be done without injury to the land; in fact, it is a good plan to have them pitted in small heaps in the field, particularly if they will be required for feeding on the land in the spring. If, however, they are to be stored for preservation in the winter months at the home farm they may be covered with seaweed where it can be obtained, or with grass, &c., cut from the borders of fields or the plantations on the home farm, and after a month covered with earth to receive the frosts of winter. The dairy cows now demand attention, for after the middle of October the grass usually becomes short and stale and deficient in quality. We now begin to give them Cabbages strewed on the pastures, otherwise we give the Cabbage cut and mixed with sweet Oat straw chaff in the mangers at milking time night and morning, and we find them do well without decreasing their milk.

POULTRY AND PIGEONS

POULTRY NOTES.

WE hear constant complaints of delay in the payment of poultry prizes. This is unwise on the part of committees and unjust. We believe that nothing has contributed more to the success of certain shows than the fact becoming known, as it is sure to be known, that the prize money is promptly paid, as it is from Oxford, Hemel Hempstead, and other well-managed exhibitions. We shall not at present name the places where such a procrastinating course is adopted, but committees may take warning and hasten to make up their accounts.

WE understand that a testimonial is being prepared for Mr. Fredk. Wragg, who for a long time has been the manager of Lady Gwydyr's poultry yards. We have more than once been most kindly shown over this beautiful establishment by Mr. Wragg, and are pleased to see this recognition of his civility to many visitors.

AT the meeting of the National Peristeronic Society last week an unusually good lot of young Pigeons were shown. Among the new members of the Society we observe the name of Lord St. Leonards, known chiefly hitherto as a fancier of Game fowls.

TWO or three months ago we received a circular about the formation of a club for the encouragement of the breeding of "German Toys." We fear the scheme is in abeyance, as we have heard no more about it, though we gave in our names as willing under certain conditions to become members.

WE have lately seen in a well-known western poultry yard some pure white Polish fowls with fine crests and well-bearded. We understand that they will not appear in public till the strain has been further perfected and established.

IN the aviaries of the same establishment we have seen a curious Archangel Pigeon, which has bright copper bars on its

black wings, of the same hue as the ordinary breast colour of the breed.

THE schedule of the Birmingham Show differs but little from last year. Plymouth Rocks and Aseels have classes, and the class for Silkies is restored. The classification of Ducks is very good, eight distinct varieties having classes to themselves. Birmingham has always been *the* Turkey Show, and still offers four classes for Turkeys, while at the Crystal Palace there is but one. In the Pigeon schedule we see no alterations. It is a pity that the vexatious Rule XIV. is adhered to. "Only one pen of poultry must be sent in each hamper, if otherwise packed they will be refused." We know of an instance in which several pens sent all the way from Montrose were refused in accordance with this troublesome regulation.

WE are glad to see that the Turbit Club has at last really good Turbit classification at one Show—viz., Carlisle. It is a pity, however, that this should be at a show held on November 9th and 10th, only two days before all exhibits have to be in the Crystal Palace.

THE schedule of the long-established Tredegar Show is published, drawn up much on the same lines as usual. The peculiar attraction of this Show is that the twelve extra prizes are given in addition to the liberal first prizes.

YEARS ago a Society was formed called "The National Ornithological Association." Its aims were too large and too indefinite, and it collapsed in consequence. We understand that a small balance from the small funds it possessed has long been a burden to the quondam treasurer, and that it is now proposed to hand over this sum to the Poultry Club, as doing the work which the Ornithological Association ought to have done. Whether the Poultry Club will accept it is another question.

WE have often wondered why someone expert in the treatment of the diseases of birds did not set up a hospital for them. Mr. Jenkinson of Sheffield has started such an establishment for poultry and Pigeons; if well managed it may prove a great boon to fanciers.—C.

THE CRYSTAL PALACE POULTRY AND PIGEON SHOW.

THE issue of the schedule for the Crystal Palace Show is always looked forward to with interest. We have just received a copy, and make a few notes thereon. The classification is as usual extended, and there are forty-eight cups offered for poultry and forty-two for Pigeons. Some of these are presented by exhibitors and some by the clubs representing the various breeds. Mr. Cresswell is responsible for the adult Silver Grey Dorking cup, Mr. Norris for the Dark Brahma cockerel cup, and Mr. Lucas for that for Light cockerels. The Langshans are this year wisely freed from the slight upon their pedigree implied in last year's classification. They have now a class to themselves, while the Black Cochins are relegated to the "Any other variety Cochin" class, where they will have to compete with Whites and mayhap Cuckoos. Leghorns have distinct classes for the Browns and Whites; Plymouth Rocks have separate classes for cock and hen, as also have Andalusians and Minorcas, which are rightly awarded distinct classes. We also note a class for Japanese Bantams, which, we trust, will be well filled.

The classification of the Ducks is somewhat singular. Aylesburys have only one class for drake and Duck; Rouens have the sexes separated, while Pekins have four classes in all, the sexes being separated, and there being also two classes for birds of 1881. There are also separate classes for drake and Duck other than Pekin hatched in 1881. The whole arrangement is somewhat complicated, and will, we fear, lead to mistakes in entering. The general heading is "Ducks (any age)," and under this heading are included the 1881 classes. The classes for table fowls are two, one for the absolutely heaviest pair, pure or cross-bred, the other for "couple of cockerels or couple of pullets cross-bred," to be judged for "fineness of quality, smallness of bone, absence of offal, and closeness of plumage." As the breed of each parent has to be stated, we presume the class is intended for first crosses only. By the way, it is curious that all the shows which give classes of this sort for table poultry word the condition as to parentage in the somewhat odd form, "sex and breed of parents must be stated." We suppose most exhibitors understand what is meant, but it might be more clearly expressed.

The Pigeon classes are 134 as against 149 for poultry. Carriers

and Dragoons have each a champion class for birds of any colour which have won more than two £1 prizes. Here again the arrangement is puzzling. The champion class 162 is for "Carrier cock any colour," while a small-print note in the next line informs us that "hens should be marked 162A." Would it not be much clearer to make the class for "cock or hen (sex to be stated)?" There are a good many other new classes, notably in the show Antwerp and Toy sections, but we have not space to refer to these in detail. In addition to the usual classes for Homing Antwerps there is one for birds which have competed in the races organised by the United Counties Flying Club. These must bear their identifying club marks. They will form an interesting addition to the homing classes, and will afford outsiders a good opportunity of seeing what the actual workers are like.

The names of the Judges are announced subject to additions to be made hereafter. We perceive with pleasure that the name of Mr. Lucas is included in the list. His experience as a breeder will doubtless enable him to make such awards as will satisfy the Light Brahma fanciers. Mr. G. Hall's name is also new to the Palace. He is, we believe, to take Game Bantam classes, a task for which his practical knowledge should amply qualify him. The other poultry Judges announced are the same as last year; while Captain Norman Hill and Messrs. Allsop, Charlton, Esquilant, Logan, Percival, and Tegetmeier are nominated for the Pigeon classes.

Curious and impracticable suggestions as to judging are by no means uncommon, but that made by the correspondent of a contemporary a week or two back carries off the palm so far. He wishes the Judge to affix a card to the pen of each prize bird, giving the reasons for his decisions and stating the points in which the winners are superior. There are many arguments which might be adduced against such a course as that suggested. One will suffice for our purpose, and that is the fact that no ordinary show would be long enough to enable a judge satisfactorily to carry out the suggestion. Imagine the labour which such a course would entail. Let the originator of the idea try it on a class or two. If judging by a numerical standard were introduced it might be practicable, but as things are it is a mere chimera. We do not suppose, by the way, that judging by a numerical standard would be acceptable in this country. We know that several leading fanciers declined at first to fill in the standard forms issued by the Poultry Club, on the ground that they did not approve of judging by a numerical standard. We believe, however, that there is no intention on the part of the Club to suggest the adoption of such a course. The standard being prepared is intended to be a guide as to the generally accepted views upon the points of the various breeds, and to be, to some extent, a check upon erroneous decisions, but not to be an arbitrary table of numerical values to be blindly followed in all cases by the judges. In America the judges, we believe, frequently "figure up" the birds after they have come to a decision as to the awards, as a check upon their general judgment. This is the furthest point to which the use of a numerical table of defects or merits can safely be extended, and it may be well that it should be generally known that the Poultry Club do not contemplate any more exact application of the standard by the Judges.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881.		Baromet- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
October.			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Snn.	2	30.173	53.2	49.7	N.E.	52.6	61.6	41.2	105.2	36.2		
Mon.	3	30.162	53.3	49.9	N.E.	52.1	60.6	42.7	112.4	36.3		
Tues.	4	30.215	51.5	47.4	N.E.	51.6	56.3	43.5	108.6	36.4		
Wed.	5	30.162	46.0	43.6	N.W.	50.7	49.6	37.0	85.8	30.9		
Thurs.	6	30.248	46.7	45.4	N.W.	49.4	55.4	34.6	70.1	28.3		
Friday	7	30.487	50.3	48.7	N.N.E.	49.7	54.8	45.6	95.8	41.5		
Satur.	8	30.091	47.4	47.1	N.W.	50.1	48.8	45.3	63.2	40.6		
		30.220	49.8	47.1		50.9	55.3	41.4	91.6	35.7		
										0.802		

REMARKS.

2nd.—Fine and bright all day, with cold east wind.

3rd.—Fine and bright; very cold wind.

4th.—Fine and bright; cold wind.

5th.—Fine, overcast at times; misty evening. First frost on grass in morning.

6th.—Slight rain in morning; fine afternoon; moonlight evening.

7th.—Very fine bright morning, latter part of day cloudy.

8th.—Foggy dark morning, rain from 2 to 9 A.M. and from 0 to 8 P.M.

Considerably colder than any week since the spring. The mean maximum in shade is nearly 10° below the previous week, and grass frost occurred on two nights.—G. J. SYMONS.



20th	TH	Sale of Orchids from Madagascar at Mr. Stevens' Rooms, Covent [Garden.
21st	F	
22nd	S	
23rd	SUN	19TH SUNDAY AFTER TRINITY.
24th	M	Apple and Pear Show at Hereford (two days).
25th	TU	
26th	W	

A ROCKERY FOR ALPINE PLANTS.

THE cultivation of alpine plants is now attempted with more or less success in nearly every part of the kingdom. Visitors to my garden frequently tell me that they are going to make a rockery, and ask for advice; and though good advice on the subject, with full instructions for the work, has often been given in these pages, the last rockery I made has proved so successful that a description of it may furnish some useful hints to others; and as I helped to place every stone on it with my own hands, I am able to tell exactly how it was made.

The length of the rockery is about 30 yards, and its direction from north-east to south-west, so that it faces south-east and north-west. It runs along the side of a level carriage drive, and the situation is quite open and away from trees. I own that for choice I prefer the side of a steep bank, or a hill sloping at an angle of about 30°, and having a south-easterly aspect, on which to lay the stones for a rockery; but every garden has not this convenience, and a mound artificially raised answers very well, but requires more attention in watering during the summer.

The total width of the base is to be 8 feet; I therefore make a long mound of the native soil of the garden—stiff red clay, believing there is no better soil for a base. This is about 5 feet wide and from 2 to 3 feet high. Now it must be remembered that this may obstruct the surface water in heavy rain, especially on strong soils; I therefore lay a line of agricultural drain pipes along each side at a convenient depth, carrying them to the nearest drain or outfall.

The next consideration is the stone. Matlock tufa has the highest reputation in the neighbourhood of London as rockery stone, and is very expensive. Matlock is my native place, and I know the material well, and no doubt it is good; but I doubt whether it is better than the rough irregular blocks of limestone, full of cracks and holes, which lie about the surface in the mountain limestone districts of Lancashire and the West Riding of Yorkshire. I have heard gardeners who live in those parts say they wished they could get sandstone. My rockery is composed partly of the new red sandstone, which is quarried within a quarter of a mile, and partly of mountain limestone from Grange, in Lancashire. But everyone must use the stone he can most conveniently procure, preferring that which presents a rough cracked surface. I may remark that I do not attach great importance to the chemical composition either of stone or of soil, not because plants have no

preference, but because even if we know exactly the chemical conditions which suit each plant, it is so difficult to supply the materials in the right proportions and combinations. Mechanical conditions are at least equally important and far more easily proved. Ordinary coarse sand and broken stone, with loam and peat, and old dried mortar, as much from its mechanical as its chemical qualities, can be made to grow almost any alpine plant if climate and situation are suitable.

The more rough and shapeless the stones are the better. The largest I use are as much as two strong men can lift into their place. The lower part of my rockery is of sandstone, the blocks of which are larger and more regular, and the upper part of limestone. Along the base at each edge must be laid a foundation of stones of moderate size, at intervals of about their own width. Upon them must rest a row of larger stones tilted backwards, but after laying a few yards the rockery must be finished to the top before proceeding. This requires some skill in the selection of stones. The largest should be kept as keystones to lock together the smaller stones, but every stone should be so locked with its neighbours that a heavy man can step upon any of them without causing any displacement before a particle of soil is added to the original mound. This is a rule I invariably observe. Beware of trusting to soil to make the stones firm, if you do they will sooner or later give way; but do not be satisfied till the biggest labourer in your garden can step and jump upon every stone without moving it. Be careful also to have as many overhanging ledges as you can. You may then add the soil for the surface. Mind it is clear from grass roots and weeds, or you will have trouble. I use loam composed of the top spit of an old pasture, adding about one-fourth of coarse sand and leaf soil, and fill the stones till they stand from 1 foot to 3 inches above the soil, leaving as many level pockets as I can. How and with what I planted my rockery I will tell another time.—C. WOLLEY DOD, *Edge Hall*.

FRUIT TREES CANKERING AND BEARING.

My pen, I fear has been idle of late. Alterations when extensive absorb, as most gardeners know, all a man's time. Working by day and planning at night leave little opportunities for press work, but the letter of "S. S." tempts me to send you a brief and hurried note.

First as to canker in fruit trees. I have seen more of this during the past two years than ever came under my notice before. When I say that frost is the immediate cause of canker, I do not expect everyone will believe me; but let those who doubt, and who live in districts where Apple trees have been injured, look at the tops of the trees for evidence.

During the winter of 1879 the late unripened growths of hundreds of Apple trees in the north were either killed or injured, and so far as I have seen not one out of a hundred of those frost-bitten growths escaped the canker. I can point to tops of trees that are full of it that were previously clean and healthy, and but for the frost there would have been few if any of the unsightly and injurious excrescences. We will now go a step further and see what is the predisposing cause of the injury, and we arrive at immature wood, and this is induced by low sites and wet soil. Low-lying positions should, then, as far as possible, be avoided in fruit-tree planting, and wet soils and subsoils should be drained. Calcareous matter should also be added to all soils that do not contain it.

This is all I can say at present on canker, its cause and prevention.

Now as to the relative earliness of bearing of fruit trees. In my experience varieties as a rule that mature fruit early bear early. There may be exceptions, but only, I think, sufficient to prove the rule. Let anyone plant rows of Apple trees of, say, Keswick Codlin, Lord Suffield, Duchess of Oldenburg, Stirling Castle, Cellini, and Hawthornden; and other rows, say, of Dumelow's Seedling, Winter Greening, Blenheim Pippin, Norfolk Beefing, Alfriston, and Boston Russet, and I think the first named six sorts will, during the first five years after planting, yield fully three times the bulk of fruit that the last six will. The varieties named are not "selections" of the best sorts to grow, but the names have been jotted down at random to illustrate what I believe is a principle—that early-ripening fruits are produced by early-bearing trees. I cannot go further into the subject now, and leave the idea for what it is worth, and I think it may possibly be worth something to those who wish to have a maximum quantity of fruit in a minimum amount of time after planting the trees. What do others say?—A NORTHERN GARDENER.

AUTUMN PROPAGATION OF ROSES.

DURING the summer a method for the propagation of unripe cuttings of Roses was described, and I have reason to believe that some readers have practised it successfully. It is, I think, the easiest and surest plan of propagation with which I am acquainted, but there is the difficulty of preserving the young plants through the following winter, which with some amateurs is a serious one. With winter propagation there need not be any difficulty in this way; the chief drawback is that some of the varieties do not ripen their wood sufficiently under ordinary outdoor culture to form cuttings such as we can warrant to strike. All those which are well ripened and are of moderate-sized growth may be counted on, and there is very little to do besides inserting them properly in the open ground and leaving them there. Such Roses as do not ripen their wood under ordinary culture will generally do so if grown in pots, when their shoots will be almost as sure to strike root as those of a Jules Margottin. Any of them, however, will strike in summer time under the treatment recommended for that season.

Although the plan of inserting Rose cuttings in autumn is probably the oldest plan for their propagation in existence, and it has been considerably revived during the past eighteen or twenty years, and received decided patronage from high quarters during the last four or five, it is not even now practised so often or so successfully as it ought to be, and the time may not be inopportune for once more reverting to the subject.

One common cause of failure is delaying the work too late. The last half of October and the first half of November is the time to insert the cuttings. If it is done later than November the chances are that the result will be a partial or total failure.

Another cause of failure is keeping the cuttings too long out of the ground. Perhaps there is a spell of bad weather, and on the score of economy an armful of cuttings are taken off in a hurry, carried to a warm dry shed, made leisurely there, and inserted at the first favourable opportunity. This plan will not do; it has been tried and failed. Although there may be no leaves on the cuttings, yet there is considerable evaporation from the bark, at any rate it soon begins to shrivel, though at first this is imperceptible, and cuttings which have been kept out of the ground forty-eight hours do not strike so freely as those which have been inserted immediately on severing them from the parent plant. If it is necessary for them to travel any distance they should be wrapped in something, such as damp moss, to prevent much evaporation.

A third cause of failure arises from the cuttings being heaved out of the ground by the frost. To prevent this it is a good plan to place 2 inches of coal ashes over the surface of the ground after the cuttings are inserted, and to tread along with one foot on each side close to the cuttings two or three times during winter after the frost is out of the ground. I also find it an advantage to make the cuttings longer than they are usually made—a foot is not too long—half of which should be in the ground. However, cuttings half that length will do where wood is scarce, but they must be looked to oftener during winter to see that the soil is properly close round them.

A fourth cause of failure which I have frequently met with arises from having the cuttings in what is called a sheltered place—against a wall or a hedge, where the soil is likely to be very poor and perhaps dry—and the plants, if plants are produced, do

not get sufficient air and light, but grow at unseasonable times and do not ripen, thus becoming an easy prey to mildew and other maladies, and are also difficult to remove. Let me remind your readers again that the Hybrid Perpetual Rose is not a tender plant unless it is made so by being coddled, that my cuttings are struck in the open garden along with the Gooseberries and Currants, and that the temperature at zero does them no harm, although I do not take the precaution to cover the surface with ashes or similar material as I am recommending others to do. "But," said a near and dear neighbour not unknown to your pages, "I covered my Rose roots with 6 inches of dung, and many of them are killed to the ground." "Possibly you did. Keep the dung away from them another season if they are on their own roots, or are dwarfs on Briars raised from seed or cuttings. Loosen the surface soil with a hoe now and then when it is dry, and you will succeed better."

Last year I went so far from previous practice as to leave a space of a foot from one cutting to another, and I may say that the experiment is satisfactory with most of the cuttings which were taken from plants in pots and some of those which were taken from plants growing in the open ground. Of the former, for instance, ten out of eleven Etienne Dupuy are now fine plants, one cutting having died. Of Madame Thérèse Levet, a most beautiful indoor Rose, fourteen cuttings all struck. Of La France, thirteen out of sixteen, and on one of the cuttings of the last-named variety during the summer I pointed out to a visitor three blooms as good as any I had seen at exhibitions this season. A row of Jules Margottin, perhaps 25 yards long (we cannot do without this old sort yet for cut flowers) taken from outdoor plants has nearly all struck and forms a nice little hedge. This has produced many very fair flowers for cutting.

I may here repeat that there is no better plan for inserting the cuttings than by making a trench box-edge fashion, placing the end of the cuttings firmly on the bottom, and then treading the soil in as hard as a turnpike road. Well-ripened wood is essential, but whether there is a heel or not is immaterial.—W. TAYLOR.

THE USE OF FIRE HEAT FOR GRAPES.

"SINGLE-HANDED'S" article on the application of fire heat to Grape Vines strikes to the point fair and forcibly. The cardinal point in the culture of all trees from which fruit is produced is to obtain ripe wood in autumn; the unfolding of the blossom and setting of the crops are then simple matters the following spring. Ripening the wood is the point from which we start, and in like manner we finish with ripening the wood again with its crop of fruit the following autumn. The conditions required for ripening both wood and fruit are identical—under natural conditions a warm sunny air, which we imitate by warm atmospheres artificially produced. Again and again the advantage of giving Vines a long season of growth has been pointed out in the Journal, though never perhaps more effectively than by "SINGLE-HANDED" on page 317. The middle of February is quite late enough in this district I find to start Grapes for winter keeping; indeed the beginning of the month is not too early.

I shall commence cropping some young Muscats next year, and shall start them, as I intend to keep them going, at the beginning of February. We can then allow the temperature to depend greatly on the weather, and grow the Vines slowly till the setting period in May, and thus have all the advantages of the summer and autumn sun for finishing the fruit, ripening the wood the meanwhile, and with the aid of a little fire heat can have the crops ripened thoroughly at a season when there is no difficulty in doing so. Black Hamburgs started in April ripen well with us and in good time.

The Grapes shown by Mr. Simpson at Edinburgh are the text on which your able correspondent founds his remarks. I quite agree with him as to the wastefulness apparent in the culture of these Grapes. It will take hard firing to have them well ripened, and it is impossible to impart to them the quality of Grapes ripened five weeks earlier. I can well imagine that gardeners who have tried Mr. Simpson's system in its integrity would be induced to give it up as a failure after seeing the Grapes in question.

When I thought the matter over before giving low temperatures an extended trial I put the *rationale* of the principle in this way. Early-forced Grapes are found to succeed in temperatures which are thought to be insufficient later on, though of course early-forced Vines have the advantage of hot weather to ripen in. For instance, Black Hamburgs to be ripe in early summer are in flower, say, in the beginning of February, and receive a temperature ranging between 70° and 75°. In a fortnight these temperatures are lowered to 65° to 70°, and in sunless weather may

be kept for weeks at that figure, and even in sunny weather from 80° to 85° are the highest temperatures reached for a few hours a day. Well, we start Vines in February to be ripe in autumn; we have them set in May, and there remains for them to finish their crop the best of the summer and autumn months. In warm weather you can indulge in afternoon temperatures with the house closed and a steaming atmosphere of 90° to 100°. I do not think these high moist temperatures of benefit to Vines, I rather prefer an afternoon temperature of 75° to 80° with ventilation as being more healthy. Of course in hot summer weather we have higher temperatures than these, but always with plenty of air; in fact I have had the ventilators of our vineries wide open at 10 P.M. and the temperature at 70°. In a season like that the necessity for fire heat was of the slightest, and in working with free ventilation we found that damping-down vineries was a part of the routine which could be abandoned without any ill effects.

All Grape-growers who employ fresh air as a factor in the production of good Grapes will find the necessity for employing water to cause atmospheric moisture to be less and less as they do with little fire heat and much air. Some of our best Grape-growers have almost dispensed with the "damping down" of their vineries altogether; but during sunless and cold summers, when Vines cannot obtain the amount of heat necessary, there is nothing for it but using the coal, and "SINGLE-HANDED'S" estimate of the time when coal is of the most benefit exactly fits the case.

Now as to the setting of Mr. Simpson's Grapes, I failed to see anything out of the common about them in that respect, but there were so many better Grapes beside them that perhaps it was somewhat difficult to form an unbiassed opinion on their merits. The setting of Grapes, in fact, does not depend entirely on temperatures. The best set Muscats of my experience were grown in a Pine stove, yet in the same garden in a well-appointed Muscat house under the usual 75° treatment the setting was not good. In a lower temperature here with old Vines we find the Muscats set ordinarily well, though great numbers of the berries which swell cannot be said to be properly set, as they are stoneless. I do not think a higher temperature would improve these, the fault is somewhere else. I should be pleased to know who are the Grape-growers "SINGLE-HANDED" refers to as showing some of the best Grapes at the past Edinburgh Show, and whether they were ripened in a low night temperature.—R. P. BROTHERTON.

THAT a good practical knowledge of Grape-growing is necessary to every gardener no one will deny; therefore I do not consider that this subject is a wearying one. To those who have seen it discussed many times it may be so, but there are always young gardeners who are glad to improve their knowledge.

The coke bill is generally a serious item in the gardener's expenses, and any system that will assist him in reducing this will be acceptable. If good Grapes can be grown in a low night temperature, that will be one way of reducing the account. That such is the case I do not think it will be difficult to prove. During the past season we have heard many complain of the want of colour in their Grapes, and the difficulty of keeping red spider down. Some have attributed this to the excessive heat. That may be so; but I am inclined to believe that a high night temperature may also have something to do with it. In many places where the low night temperature system is adopted, the Grapes have been all that could be desired both in flavour and colour. In one of the vineries here Muscat of Alexandria and Black Alicante are planted, and during the flowering time the night temperature never exceeded 55°. Many assert that Muscats require a high night temperature to secure a good set. I have before me a table of the temperatures formerly kept in a large fruit-growing place in Lancashire. I find that 75° was the average night temperature for Muscats when in bloom, yet in a temperature 20° lower our Muscats set freely enough. The Grapes are well ripened, the colour is good, and we are free from red spider. I do not mean to say it is advisable to dispense with fire heat altogether, that depends upon the weather; we have found it an advantage to turn a little heat on at times, but we do without it as much as we possibly can.

In the Peach house we have had no fire heat beyond what was necessary to keep the frost out. We had an excellent crop, many of the Peaches weighing over 9 ozs., and measuring upwards of 10 inches in circumference. I should be glad to see what others have to say on this subject.—CANTAB.

FUCHSIA EDELWEISS.

WE have received sprays of this new Fuchsia from Messrs. Hender & Son, Plymouth, accompanied by the following letter

—"We send blooms of our seedling Fuchsia Edelweiss, which we hope to send out another spring. We have grown it beside some of the best varieties, such as Miss Lucy Finnis, Grand Duchess, Snowcloud, &c., and find it of better habit and a more profuse bloomer than any, having four to six blooms at a joint when growing strong. It is rather late now for good blooms: those sent are just as they come in ordinary cultivation. The white is very pure. If you think it worthy we should be glad of a line respecting it in the *Journal of Horticulture*."

We do think it worthy, and not overpraised in the above letter.



Fig. 60.—Fuchsia Edelweiss.

It is evidently a very profuse bloomer, and the flowers are of good form and very pure. They are reduced in size in the annexed engraving.

AUTUMN-PLANTED POTATOES.

LAST October I asked some questions about planting Potatoes, which were kindly answered in the *Journal*, and I was requested to send the results of the experiments that I was then about to try. The Potatoes were planted the first week in October about 6 inches deep, they were well covered with dry decayed manure, and the holes were then filled with soil. The tubers were not cut, and the variety was Early Rose. In due time the shoots appeared, and were much injured by the late frosts; the foliage never looked healthy after, and there was 10 per cent. blanks in the rows. The Potatoes were ready to lift the second week in July, but the crop was not heavy, many of the tubers being very small, most of the large tubers very ill-shaped, and when cooked they were close in substance, which I attributed to deep planting. So much for autumn-planted Potatoes. By way of test, at the end of March I planted one row of the same variety close to the others. The frost did not affect them, as they were not so forward, and it was surprising how they grew and took the lead. There was not a blank in the row, and they were ready to lift the first week in July, the crop being heavier, the tubers larger, with fewer

small ones amongst them than was the case with the autumn-planted Potatoes; they were well shaped, and when cooked were floury. The difference I attribute to late and shallow planting. They had no check, the tubers were just covered, and the sun ripened them.—WIMBLEDON.

ROSES—ARE WE PROGRESSING?

WHILE all Rose-growers must acknowledge with thanks our great indebtedness to Mr. Hinton for carrying out the wearisome task of tabulating his sixty-seven Rose returns, I fear that we must confess at the same time that we have no great cause for satisfaction at the result to which he has arrived, at least as far as the recent improvement of the exhibition Rose is concerned. We see that not very much has been done for it in the last ten years; perhaps it would be fairer to say eight, as the Roses of the last three years can hardly be said to have come into cultivation so generally as to take, for good or evil, the place to which they are justly entitled, though four of them have, I see, found their way into the list. On examination of the election we find, disappointingly I think, that all the first ten Roses are more than ten years old; that of the first fifty where dates are given, thirty-six are of similar date; that of the eleven Teas and Noisettes mentioned, nine date from 1838 to 1869; and that besides in the best of the old Roses there is, so to speak, a much greater individuality than in the new. It would be impossible to mistake the *Baronne Maréchal*, or *La France* for any other Rose if we saw it across the room, and though cut blooms of the two first on the list are somewhat alike, the character of the plants is quite distinct. Of how many of the new Roses can it be said that we know at once what they are?

It would seem, then, that improvement in the present class of exhibition Rose has come nearly to a standstill. Every now and then, certainly, we get a Rose like *A. K. Williams*, absolutely new and surpassingly beautiful; but of the great majority, even of good Roses of the present day, we may almost say that we could have done very well without them.

Now, much as I admire our present exhibition Roses, I must confess that there is too much monotony of style and character about them. A dozen types are more than are to be found among them all. One tray in a show is much like another, somewhat better or somewhat worse, much the same coloured, much the same shaped flowers. Their owners are practically compelled to show only Roses of such a class and such a shape as is authorised by the fashion, and by adhering too rigidly to an artificial standard of excellence we lose much of beauty and variety. We must show Hybrid Perpetuals and Teas, and so have no chance of setting up flowers of any shade of colour not to be found in these two classes. We have no white Rose, for *Madame Lacharme* is not white and usually worthless, but we must not put in *Madame Plantier*; we have no brown crimson, but *Boule de Nantenil* is excluded as a summer Rose, and too flat besides; we have no slate colour with fiery eye, but there is no place for *Majolin*; no copper colour, but *Austrian Briar* would be a heresy; and the result is that outsiders say "when they have seen one tray they have seen all." And those exhibitors who value their Roses, and not merely, so to speak, as tools for their trade, grumble at the narrow scope allowed them by fashion in which to exercise their fancy.

Then, as we seem to have got nearly to the end of our present tether, is it impossible to strike out some variety in one style? It would be something if the National Rose Society would stir in this, giving prizes, say, for the twenty-four bunches of Roses best varied in colour and character irrespective of shape. Such a tray would contain a number of shades and tints never seen in shows now-a-days.

Again, has no one the courage to try his hand at raising unconventional seedlings, by hybridising or not as suits him? We cannot expect this of nurserymen, for they can only raise what will pay; but among amateurs. Yellow Perpetuals, or even Gallicas, striped, copper-colour, plenty wait to be raised. The drawback will be the difficulty of getting good seed; indeed this is the third year I have no ripe hews, and my seedlings of former years are becoming few in number as one after another is pulled and flung away; but a cheap orchard house well filled with varied Roses, or unoccupied portions of wall might help. Only there must be some appreciation of the fact that we are at a standstill at present, and that having excellence simple, we want variety of excellence.—DUCKWING.

LIQUID MANURE FOR FERNS.

As I do not remember seeing any mention of liquid manure being used for Ferns it tempted me some time ago to try its effects, as my plants are cut very much, and I could scarcely obtain

sufficient fronds to supply the house. Since using the liquid manure the plants look quite different and produce abundance of strong fronds, and though they have not been potted for three years, they grow as well as those which have been so treated each year. The liquid manure is obtained from a tank which comes from the stable, and is very strong, but it is only used weak, and given to the plants once a week in winter, and in summer when they require more water it is given twice a week. I would recommend Fern-growers to try this, but not to use it too strong at first, and take notice of the results. I have been benefited by many hints in the Journal, and hope the one I send may help others.—J. GILBERT.

SCRAPS ABOUT FRUIT.

APPLES—BAD AND GOOD BEARERS.—"A COUNTRY SURGEON" asks your readers to notice those Apples that have not answered their expectations. We have many sorts, and several of them bear only a few Apples, while others are always loaded with fruit. Early Harvest is a good Apple, but only bears a few every year—never a good crop. Bess Pool is no bearer with us, just producing a few fruits every year. Blenheim Orange is a very fine Apple and highly flavoured, but does not do very well; some of the trees bear a few fruits and others none. Emperor Alexander is very beautiful, of good flavour, but is a shy bearer, yet the tree does not grow luxuriantly. Court Pendu Plat is a first-rate dessert Apple but not a great bearer so far, but may improve as the tree gets older. I have kept fruit of it till the 1st of June. Northern Spy is a fine Apple and a good keeper, but seldom bears, yet the tree looks very healthy. The trees have all been root-pruned. There are only a few varieties that bear every year alike, and these we depend on for a supply. Kerry Pippin is one of the best dessert Apples we have; the tree is loaded with fruit every year. Keswick Codlin, an excellent bearer, and a capital kitchen Apple. Lord Suffield, one of the best early kitchen Apples, bears beautiful crops every year. Warner's King, very large, is covered with fruit every year, and is a first-rate kitchen Apple. Searlet Pearmain, a good dessert Apple, bears a good crop every year. Pearmain is one of my favourites, the tree bearing heavily every year; I have kept the fruit till June. Newtown Pippin, a fine dessert Apple, as large as Warner's King; has a fair crop every year; is one of the best, also a good keeper.—F. WALKER, *Isle of Wight*.

STORING FRUIT.—A very important matter in connection with hardy fruits is that of storage. We are just finishing the storage of ours. What I want to note is this, that an unlimited supply of cool air is good for the fruit for a week or two after being stored, after that ventilate according to weather. It used to be thought that fruit kept best when in darkness. I think it doubtful if it does, and accordingly do not use shutters to the windows now unless in case of frost. These past severe winters, frost was kept from the fruit by keeping paraffin lamps constantly burning, and by covering the fruit with several layers of newspapers.

MANURING FRUIT TREES.—Very often fruit trees of all kinds are starved. How is it possible that fruit trees can produce crops year after year from practically exhausted ground? At present we are surfacing the ground amongst hardy fruits with a few inches in depth of manure. The soil is dug just so deep as to afford a covering to the manure.

STOCKS FOR APPLES.—Free-fruited Apples like *Stirling Castle* and *Lord Suffield* have a tendency to make too little wood when worked on the *Paradise* stock, at least such is my experience. To get over this defect I bought a quantity of *Crab* stocks, and have budded them with the freest-bearing kinds. I now hope to have a strong healthy growth along with as heavy, or perhaps heavier, crops of fruit. It is a necessity, however, to transplant every two seasons for a few years in order to get the roots into a fibrous and stay-at-home condition.

DUTCH MIGNONNE.—I see this Apple is recommended as a free-bearing sort. So it is; but with us it has an unfortunate tendency to crack, which spoils it.

JEFFERSON AND VICTORIA PLUMS.—I can endorse what is said in favour of *Jefferson* Plum. It is the heaviest cropping dessert variety we have. The kitchen Plum which approaches most nearly to it in that desirable quality is *Victoria*. In recommending fruits the test point should always be that of fruitfulness.—R. P. B., *East Lothian*.

WARNER'S KING APPLE.—Permit me to advise "R. P. B." not to rely solely upon this Apple for a midwinter supply, but also to plant some other good sorts, such as Golden Noble, Tower of Glamis, and Hanwell Souring. The fine fruit of Warner's King is keeping badly this year—so badly that I cannot hope to have it really good after the present month. The trees of it here are correctly named, and the fruit usually keeps good much later in the year. Premature ripeness and decay will, I fear, be found prevalent among many other Apples this year. Is this a result of the extraordinary heat?—A KENTISH GROWER.

GOOSEBERRIES.—A desire to know all about Gooseberries induced me to supplement the rows of Warrington and such other sorts of proved excellence as Early Sulphur, Pitmaston Green Gage, Red Champagne, Lion's Provider, Green Overall, Dan's Mistake, Ironmonger, Whitesmith, Snowdrop, Rough Red, and Ploughboy, by making a mixed plantation of some eighty sorts, all of them quite unknown to me, but presumably good, as they were afforded a prominent place in the catalogue of a fruit-growing nurseryman of considerable note. Never was I more disappointed, for hardly any of them proved worthy of culture, and I turned the lesson to account by discarding the whole of the worthless sorts and adding to the number of those which I knew to be good.—E. L. O.

BEURRÉ DE CAPIAUMONT PEAR.—This is a variety that ought to be in every collection. Grown as a pyramid or standard it never fails to produce heavy crops of excellent fruit. When gathered about the middle of October it remains in good condition until Christmas. During the past unfavourable seasons which we have had this variety never failed to give a plentiful supply, and though the fruit was small it was of good quality.

NAPOLEON PEAR.—This is a large and fine variety I highly commend to be added to every collection. It has all the qualities of a good Pear, and the advantage over many by being a good keeper. We have it as an espalier, and find that it bears the close pinching process better than many varieties.

BEURRE DE L'ASSOMPTION PEAR.—I obtained a pyramid tree of this variety from a well-known nursery firm nearly four years ago, with it a very high character as to its free bearing, as well as other good qualities. I find it a very free bearer, but otherwise it is worthless as a pyramid. I am afraid I must have the wrong variety. Will any of your correspondents who may have given this Pear a trial kindly state their experience and oblige?—LEADENHAM, *Grantham*.

PRUNING APPLE TREES.—The Keswick Codlin and Dumelow's Seedling produce finer fruit on the young wood than when kept pruned-in on the spur system. There are many varieties of Apples from which the produce would be better, both in quality and quantity, if the knife were not used quite so freely. In the orchard Apple trees ought not to be pruned too hard. Finer fruit is gathered from trees which are occasionally thinned-out and kept within bounds than from trees which are annually cut-in as close as those which occupy a place in the kitchen garden. Some Apples bear the knife better than others; Blenheim Orange, Cockle Pippin, and King of the Pippins, all bear well when kept spurred-in. Would it not be an advantage if your correspondents were to state what soil their trees are growing in? Our soil is very poor and shallow, partly on chalk and partly on gravel. The varieties I have mentioned have borne excellent crops this season. Dumelow's Seedling ought to be in every collection.—CANTAB.

NUTS.—Cosford is very prolific; nut large, oblong, shell thin, large, well-flavoured kernel, and early, not keeping so well as those with thicker shells. Pearson's Prolific bears in a young state very freely, and is a dwarf grower; nut obtusely ovate, shell medium as to thickness, fine kernel, and excellent. Lambert's Filbert is the same as Kentish Cob (but is not a Cob, which are roundish and thick-shelled), very large, oblong, and compressed, kernel very full, and keeps well, not being full flavoured until kept a time. Red Filbert, medium size ovate; kernel full with red skin, and very rich in flavour. It bears freely. White Filbert is similar to the Red, but with white skin, medium-sized nut, full kernel; quality excellent. Purple Filbert, ornamental foliage, and similar to Red Filbert as regards the nut, only the skin is deep purple; quality excellent. Frizzled Filbert, nut small, kernel full, shell thick. This is a late sort and a great bearer, producing the nuts in clusters. From its deeply frizzled

husk its appearance is unique. Cob, large nut and kernel, and capital for early use, but does not keep well; the tree is a great bearer. Merveille de Bolwyller, large and excellent in every respect, the tree being a great, constant, and early bearer. The three first-named are best; but all are good and desirable for variety.—G. ABBEY.

GLASS COPING FOR APRICOTS.—We have a considerable number of Apricot trees in the garden under my charge, in fact more than are wanted, simply because four large specimens protected by Rendle's glass coping yield extraordinary crops of fruit, quite sufficient for the demand. Owing to the Apricot's habit of early flowering, and the delicate nature of their blooms, extra precautions have to be taken to protect from frosts, and nothing I have tried equals the coping above referred to. The light yet warm nature of the blinds used in connection with the coping affords ample protection from both frosts and destructive easterly winds without unduly shading and weakening the blossoms. The crops are also forwarded considerably, and, what is of great importance, the growth ripens early, abundance of sound blossoms invariably resulting. The blinds during the summer are employed for shading purposes, and the glass is taken out and stowed in boxes till required again.—W. C. N.

THREE EARLY-BEARING APPLES.—Growers of fruit cannot always afford to wait many years for "returns," and for this reason varieties of Apples disposed to bear fruit when in a comparative young state are oftentimes selected. A friend of mine a few years since planted some hundreds of Apple trees, some of which bore freely during the third season, and carried excellent crops during the fourth season, without any apparent injury accruing to the trees. Cellini was one of the first to commence bearing, and Manks Codlin and Jolly Beggar also distinguished themselves. The two former are well known and appreciated; but the Jolly Beggar, according to my experience, is not so much planted by private growers as it deserves to be. It is a culinary Apple, of good size and flavour, in season from August to October.—ESSEX.

APPLES FOR MARKET.—Those who plant fruit trees with the intention of marketing the whole or part of the crops should first ascertain which are the most saleable culinary or dessert varieties. Those in the secret are well aware the former are invariably in much the greater demand, and of course plant accordingly. If varieties can be grown suitable for both purposes so much the better, and fair-sized bright-coloured fruit are generally preferred. These qualities are to be found in Blenheim Orange, King of the Pippins, Emperor Alexander, Fearn's Pippin, Cox's Pomona, and Gravenstein. Another lesson—market growers are not satisfied with selecting suitable varieties, but are very particular what soil they have them off, and also to have them perfectly free from American blight. What they prefer are trees that we should term "scraggy," well knowing that such, on their comparatively poor soils, are the first to form good trees. Vigorously grown trees are apt to "stand still" for years after removal, and those affected with American blight soon became cankered and worthless.—W. IGGULDEN.

A RUN TO THE WEST.

It is necessary to say at the outset that the starting point was London, the route the Great Western Railway, and the terminus Frome, so that the above heading may be intelligible, for obviously no place can be in the "west" to all the readers of this Journal. The question may now arise, What interest does Frome possess to the horticulturist? In itself it possesses little if any interest; but as it is the station for Marston House, the seat of the Earl of Cork and Orrery, whose garden is in charge of Mr. Iggulden, and as Longleat, the noble patrimony of the Marquis of Bath and the field of Mr. William Taylor's labours, is within easy distance of Marston, it will perhaps not be a matter of surprise that the busy Somersetshire town was so intimately connected with this run to the west.

The run was sharp and the stay brief, therefore no elaborate account will be given of the two gardens. Their salient features may, however, be noticed, and some impressions recorded that will not be unacceptable, and possibly may be useful. But last week, it may be premised, was not favourable for visiting gardens, so far, at least, as their attractiveness was concerned, for Dahlias and similarly tender flowers were killed by the frosts—"vrastzes," a native termed them—of a few days previous. Still, even "vrastzes" cannot demolish the interest of a garden nor obscure the work of good gardeners, and both outside and in there was

something worth seeing in the gardens and their surroundings that will now be referred to.

MARSTON HOUSE.

This is situated on the southern slope of a heavily wooded eminence about two miles and a half from Frome, and commands a view of great extent and beauty. The mansion is approached by a sunken carriage drive with bold shrub-clad lawns rising on either side. From the north side, or carriage entrance, a fine flight of steps flanked by vases leads up a series of five terraces to the higher ground, where noble trees, glades, and an enclosed flower garden are the principal features. On the opposite, or south, front is a fine terrace walk, from which an extensive lawn slopes to the park. There are no flower beds, and properly so, here; stately deciduous trees, a grand old Yew having a trunk nearly 30 feet in circumference, a fine Cedar, and Golden Wellingtonia being far more appropriate ornaments. It is from the terrace that the view is so fine, even magnificent—hill and dale, wood and water, rendering the scene as picturesque as it is extensive. The pleasure grounds are rich in trees, having an undergrowth of Laurels kept cut, and the park is heavily timbered, Elms, Beeches, and Chestnut attaining a great size, Thorn trees plentiful and all aglow with extraordinary crops of scarlet fruit. On the mansion are some of the finest Magnolias in the kingdom, and adjoining it a large conservatory kept gay with flowers, of which Lord Cork is a great admirer.

The gardens are on lower ground, about a quarter of a mile from the mansion, and separated from it by a portion of the park and a plantation of trees. About three acres are enclosed with walls, old, strong, and lofty; most of the trees are old too, yet some have fair crops of fruit. Bush fruit trees have been freely planted some years ago, but they are infested with the *Aphis lanigera*, and much labour will be necessary to cleanse them and render them satisfactory. There is a fine wall of cordon Pears too closely planted and trained, the branches being only 8 or 9 inches apart. By removing the worst of them and adding fresh soil and manure to the roots the trees may be renovated, and they are worth the effort that will be made to improve them. Glass copings over Apricot trees prove their value, the protected trees bearing twice the number of fruit that others do that have no protection. There are two vineries with exhausted Vines, so exhausted that there were only six bunches in the Muscat house. Most men would have uprooted them, made new borders, and planted young Vines, but Mr. Iggulden preferred to adopt a renovating process, and he will succeed. By heavy dressings of manure, which Vine roots cannot resist, he has already secured a mass of surface fibres and a fair extent of young wood. Fresh soil, wood ashes, &c., will do the rest, and he will have Grapes next year, and more the year following than he could have obtained from young Vines, besides saving much outlay. Such Vines as these can only be rendered healthy and fruitful by skill combined with persevering labour, and these they will have.

A Peach house some 200 feet long also needs renovation. The trees have the "yellows," and only fresh soil and surface roots can cure them. There are some half dozen span-roofed plant houses and ranges of pits of great service. These are being stocked with useful plants. In one house Tea Roses struck in the spring are in 11-inch pots and flowering freely. This is as quick and good work as can be wished, and Tree Carnations of the same age in 9-inch pots are in their way equally fine, and will give an abundance of flowers throughout the winter.

One house is brilliant with Zonal Pelargonium Guillon Mangilli, evidently most valuable for winter, and in striking contrast are a number of plants of *Begonia semperflorens grandiflora*. This *Begonia* should be grown in every stove or intermediate house in the kingdom where white flowers are required during autumn and winter, especially as the plants can be so easily raised and grown, those in question being the produce of seed sown in April of the present year. This is a new variety, and was exhibited before the Floral Committee of the Royal Horticultural Society last year, and only lost a certificate by one vote; but as the plants are now grown at Marston they represent a variety of decidedly greater merit and usefulness than some flowers that gain a mark of honour perhaps by one vote. This *Begonia* is much superior to the typical form, inasmuch as it is of much freer growth, has a branching habit, with larger trusses of finer pure white flowers. A great merit of the variety is that it comes quite true from seed, and a batch of plants must be at the least as valuable as a number of Primulas. All who see the plants in question admire them, and the sooner seed can be raised and distributed the better. In another house plants of the same variety are associated with a small unnamed scarlet *Begonia* of great decorative value, much resembling *B. Ingrami*, but superior to it, and it is not easy to imagine a more beautiful mixture. Both

the *Begonias* should be grown freely, and if grown as well as those at Marston they will not be likely to disappoint either employers or gardeners.

The usual kinds of decorative plants—Primulas, Cinerarias, Cyclamens, Bouvardias, and Violets—are grown in the manner that Mr. Iggulden has recommended in these columns, and their condition testifies to the soundness of his teachings. Strawberries in pots are excellent; indeed, everything that there has been time to do in the yet short term of service of the cultivator appears to have been done well.

It is not necessary to dwell on the kitchen gardening, as in this branch most of the best exhibitors of the day know of Mr. Iggulden's competence, and some of them would have been as well pleased at times if his productions had arrived too late. Lord Cork enjoys his garden and gives aid readily towards rendering it satisfactory, and there is not a doubt that his gardener will make the most of the means at his disposal. Marston taken in its entirety is a fine old country seat, and worthy of all the care that its noble owner exercises in its preservation and improvement. Notes on Longleat must be postponed.—J. W.

NOTES ON PEARS.

IN continuation of my article on page 312 as regards Pears, many people recommend strong loam for their successful growth. Although I know quite well it is the best, probably not two gardens in a score have that kind of soil, and my opinion is that with a little extra attention good Pears may be grown in almost any kind of soil. If the soil is light and poor place some good loam round the roots of the trees, and mulch heavily with farmyard manure during the summer months. The ground must be prepared by trenching, and have the loam ready by planting time for placing about the roots. It is certain that the fruit will not be so fine on pyramid and espalier trees as on trees against walls, although when grown as pyramids very creditable fruit may be obtained, especially if on the Quince stock. In many gardens there is little wall space; then the midseason and late kinds had better be grown as espaliers, as they come finer on that system than as pyramids. But where there is wall room it is best to devote them to the midseason and late kinds, and the early kinds as espaliers or pyramids. As regards the best stock for Pears that is a matter of opinion. If they are on the Pear or free stock they make trees much quicker, grow to a larger size, and are longer-lived than those on the Quince; but when on the latter stock the fruit is often finer, the trees are more prolific, and come into bearing much quicker. Consequently most people prefer the latter stock, although some kinds will not do on the Quince, such as Marie Louise, Winter Nelis, and Easter Beurré. Cordons are all best on the Quince. If large fruit are required for exhibition, cordons are the best; if principally for table use, the trees should be fan-shaped or horizontal-trained. When grown as cordons many varieties may be had in a small space, and every place of any extent should have some cordons, as they are very interesting, especially when many varieties are grown. The following I find the best varieties for succession:—Doyenné d'Été, Beurré Giffard, Williams' Bon Chrétien, Beurré d'Amanlis, Louise Bonne of Jersey, Beurré Hardy, Beurré Superfin, Marie Louise, Pitmaston Duchess, Glou Morceau, Durondeau, Beurré d'Aremberg, Beurré Diel, Chaumontel, Josephine de Malines, Knight's Monarch, Bergamotte d'Esperen, Marie Benoît, and Olivier de Serres.—FRUIT-GROWER, *Worcestershire*.

NEPENTHES RAJAH AT HOME.

LAST week this remarkable *Nepenthes* was exhibited for the first time at South Kensington, and certificated by the Floral Committee of the Royal Horticultural Society. As was stated in our report the plant was found by Messrs. Peter Veitch and F. W. Burbidge upon Mount Kina Balu. The accompanying engraving is from a sketch by Mr. Burbidge, showing the mountain as seen towering through the valley mists of early morning, and illumined by the rising sun. We are further indebted to Mr. Burbidge for the following notes on *Nepenthes*, which will, we doubt not, be acceptable to our readers:—

"*Nepenthes*, or the true Pitcher Plants, are very plentiful in Borneo, many species growing in the lowlands near the sea, such as *N. Rafflesiana*, *N. Veitchii*, *N. bicalcarata*, *N. gracilis*, and its small variety *N. laevis*, *N. hirsuta*, and others; but it is on the Kina Balu or 'Chinese Widow' Mountain, which towers upwards into the clouds (about a hundred miles northwards of the British colony of Labuan), that the most wonderful species of the whole genus are to be found. The finest species already discovered on the rocky sides of Kina Balu are *N. Rajah*, so named by Sir

Joseph Dalton Hooker, K.C.S.I., the present Director of the Royal Gardens, Kew, in compliment to his friend Rajah Brooke, a man whose name is yet a "household word" throughout the length and breadth of Borneo, and among all the native races of the Malayan Archipelago. *N. Edwardsiana* is another fine species, having pitchers varying from 12 to 22 inches in length, and being of a soft vermilion red colour. *N. Lowii* is shaped like an old-fashioned wine flagon, and *N. villosa* true (not *N. Veitchii*, often misnamed *N. villosa*) is coloured like a well-ripened Peach of the Royal George race. Then *N. Boschiana* var. *Lowii* has long cylindrical green pitchers heavily blotched with dark purple; and *N. Burbridgei* has triangular stems, decurrent leaves, and bears pure white pitchers, something like the finest eggshell porcelain in texture, spotted with bright purplish red or crimson.

Of all these species *N. Rajah* is by far the most bold and distinct in habit of growth, and it bears pitchers of by far the largest size and capacity. The largest-sized pitchers borne by this species hold nearly four pints of water when full, and are capacious enough to drown a rat; indeed, Mr. Hugh Low actually did find a dead rat in one of the pitchers of this species, as related by Spencer St. John in his 'Life in the Forests of the Far East.' Mr. Low, although the original discoverer of all the above species, was singularly unfortunate in his attempts to introduce them alive into European gardens. So also Mr. Thos. Lobb, a most successful Eastern plant-hunter, failed even to reach their habitat, although he did penetrate

into the interior as far as Kina, the last village on the way to the great Pitcher Plant Mountain. The natives of Kina are a bold and independent people, and refused to allow Lobb to pass, but he ascended the small mountain of Labang Labang, to the right in our sketch, and there actually found *N. villosa*, although he failed to bring it home alive. Kina Balu is 13,700 feet high, and is five or six days' journey from the N.W. Bornean coast."

The following is an account of a journey to this mountain undertaken by Mr. Burbridge and Mr. Peter Veitch, as given in Mr. Burbridge's interesting work of travel, "The Gardens of the Sun*."

"Returning to the Kina we engaged Boloung and Kurow, the acting head men of the village, and six of their followers, to take us up the great Kina Balu mountain on the morrow. 'Musa' and Pangeran Raman did most of the bargaining on our side, and at length concluded the matter by paying over the amount of cloth and brass wire as agreed. Next morning we selected sixteen of our men and started for the mountain. In a rich bit of shady forest on the other side of the Kina ridge we found the evergreen *Calanthe macroloba*, bearing spikes of white flowers much larger individually than those of *C. veratrifolia*. A foliage plant marked with silvery blotches above and crimson beneath was also collected. Our road was a rough and tiring one of sloping hillside paths very wet and slippery, and in places blocked by fallen trees. About one o'clock we reached a rushing stream, and our guides brought us to a large overhanging rock, where they said we must pass the night. It now began to rain heavily, so we at once told the men to cut sticks and Palm leaves

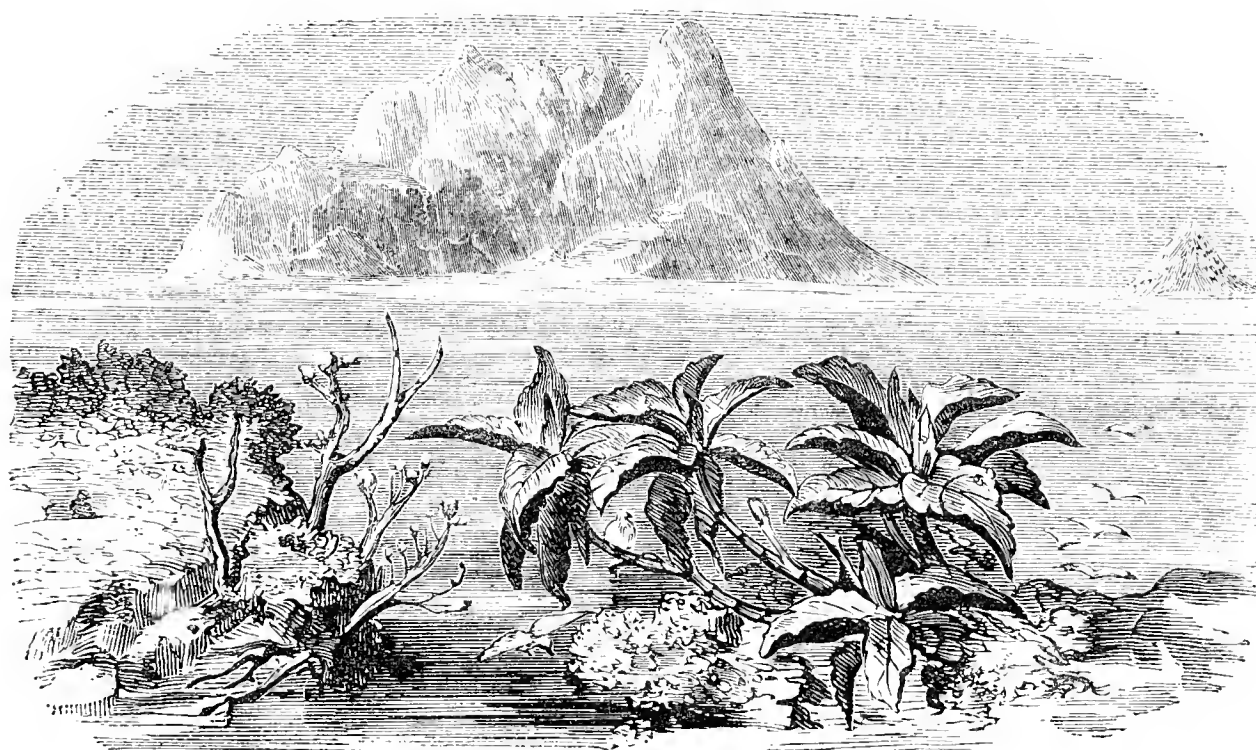


Fig. 61.—KINA BALU MOUNTAIN, N.W. BORNEO.

to lay on the ground where we were to sleep, and over which we could spread our waterproof sheets and rugs. This was soon done, and meanwhile our 'boys' prepared luncheon. We were disgusted at stopping thus early in the day, and wished our guides to proceed when the rain abated, which, however, they determinedly refused to do. To make the best of a bad bargain I and Mr. Veitch explored the forest above our camp, where we found a pretty Aroid with white blotched leaves, and another marbled with silvery grey; also a variegated plant resembling an *Anæctochilus*, but which Professor Reichenbach tells me is the *Cystorchis variegata* of Blume. This plant I had previously gathered in another locality further south; indeed, it seems pretty generally distributed along the north-west coast. Specimens of two or three delicate filmy Ferns were found near the stream; and at our camping place, which we named the 'Sleeping Rock,' the pretty little *Adiantum diaphanum* was plentiful, and living plants were brought to England from this habitat.

"About seven o'clock next morning we started on our upward journey. It was hot work at first, but we could feel it perceptibly get cooler after the first 2000 or 3000 feet. At about 4000 feet Mosses are very plentiful, the finest species gathered being *Dawsonia superba*, which fringed the path, but nowhere in great plenty. A new white-flowered species of *Burmannia* was also gathered, and small-flowered Orchids were seen. In one place a shower of small scarlet *Rhododendron* flowers covered the ground at our feet, the plant being epiphytal in the trees overhead. It was very misty, and the Moss which covered every rotten stick, and the vegetation generally, was dripping with moisture, and every sapling we grasped in climbing upwards was the means of shaking a shower-bath on us from the trees above. At about 5000 feet a dead and broken pitcher of

Nepenthes Lowii lying in the path led to the discovery of the plant itself scrambling among the mossy branches overhead, its singular flagon-shaped ascidia hanging from the point of every leaf. It is a vigorous-habited plant, with bright green leathery leaves, the petioles of which clasp the stem in a peculiar manner. The only plants we saw were epiphytal on mossy trunks and branches, and we searched for young plants diligently, but without success. All the pitchers hitherto seen are cauline ones, and as the plant has never yet been seen in a young state, it is an open question as to whether the radical pitchers differ in shape or size, as is the case with most other species. As we ascended higher, epiphytal Orchids, especially *Ericas*, *Dendrochilia*, and *Cœlogynes*, became more plentiful, and we came upon a large-flowered *Rhododendron*, bearing rich orange flowers 2 inches in diameter, and twenty flowers in a cluster! It grew on a dangerous declivity, and not one of our lazy men would venture to get it for us. Such a prize, however, was too lovely to forego, and after a wet scramble among the surrounding bushes I secured it in good condition. Two or three other species were seen in flower, but none equal to it in its golden beauty. Here also we found two of the most distinct of all *Rhododendrons*, *R. ericifolium* and *R. stenophyllum*. On open spaces among rocks and Sedges the giant *Nepenthes Rajah* began to appear, the plants being of all sizes, and in the most luxuriant health and beauty. The soil in which they grew was a stiff yellow loam, surfaced with sandstone grit, and around the larger plants a good deal of rich humus and leaf debris had collected. The long red-pitchered *N. Edwardsiana* was seen in two places. This plant, like *N. Lowii*, is epiphytal in its perfect state, and is of a slender

* London: John Murray, Albemarle Street.

rambling habit. Highest of all in the great *Nepenthes* zone came *N. villosa*, a beautiful plant, having rounded pitchers of the softest pink colour, with a crimson frilled orifice, similar to that of *N. Edwardsiana*. All thoughts of fatigue and discomfort vanished as we gazed on these living wonders of the Bornean Andes! Here, on this cloud-girt mountain side, were vegetable treasures which imperial Kew had longed for in vain. Discovered by Mr. Low in 1851, dried specimens had been transmitted by him to Europe, and Dr. (now Sir Joseph) Hooker had described and illustrated them in the Transactions of the Linnean Society, but all attempts to introduce them alive into European gardens had failed. To see these plants in all their health and vigour was a sensation I shall never forget—one of those which we experience but rarely in a whole lifetime!

"Not being altogether satisfied with our trip to the mountain, we resolved to start off to it again, but this time to take another path so as to reach the 'Marie Parie' spur. We climbed up a rocky pathway, besides which we noticed fine plants of *Cypripedium Petreianum*, *Cystorchis variegata*, and a lovely yellow-flowered terrestrial Orchid belonging to the genus *Spathoglottis*, but quite distinct from *S. aurca*. As we descended, our path lay up through a belt of tall Bamboos, and here two species of *Nepenthes* were seen. One was the long green-pitched kind covered with purple blotches (*N. Boschiana* var. *Lowii*), and the other a tall-growing species, *N. Burbidgei*, bearing beautiful white pitchers, elegantly ewer-shaped, diaphanous like 'eggshell' porcelain, and most daintily blotched with reddish crimson in a way quite unlike any other variety. This grew on both sides of the path, and climbed the trees to a height of 40 or 50 feet. We reached the crest of the ridge about three o'clock, in a heavy drenching shower, the climate being similar to that of a warm autumn evening in a Devonshire wood. We slept under some overhanging rocks at an elevation of about 4000 feet, having an understratum of sticks and brushwood to keep our waterproof sheets off the wet ground. The air, even at this low elevation, was chilly during the night, and we found a fire and blankets acceptable comforts. *Melastoma macrocarpa*, bearing its large rosy flowers, formed a large proportion of the brush around our camping ground. Here the large *Nepenthes* were very fine; and a beautiful white-flowered *Dendrobium* grows among the bushes. It belongs to the nigro-hirsute section, and has pseudo-bulbs 5 or 6 feet high. The blossoms are described by Mr. Low as being similar to those of *D. formosum giganteum*, but with a deep orange red blotch on the lip.

"Just above our camping ground, the long red-pitched *Nepenthes Edwardsiana* was very beautiful growing up through the low jungle, its pitchers contrasting with the tufts of rich green moss which draped trunks and branches everywhere. *N. Rajah* was also abundant; and we noticed some immense urns depending from its great broad leaves, far finer, indeed, than those found at 9000 feet elevation on the more southern spur."



THE annual display of CHRYSANTHEMUMS AT FINSBURY PARK promises to be equal to last year, and will be opened to the public on and after Saturday, the 22nd inst.

— "A. B." wishes to inform "D., Deal," that the best way to manage the "spawn" of such GLADIOLI AS BRECHLEYENSIS is to plant it at once, 2 inches deep, in open ground. It is perfectly hardy, though old corms are not.

— THE LIVERPOOL HORTICULTURAL ASSOCIATION'S FRUIT AND CHRYSANTHEMUM SHOW will be held, as last year, in St. George's Hall on November 30th instead of the 23rd, as stated on the schedules issued. This alteration is due to the Committee being unable to obtain the Hall for their Show on the date announced.

— A SOUTHERN correspondent writes—"Now that the planting season has arrived it will not be out of place to remind intending planters that ILEX AQUIFOLIUM variety PENDULUM is a grand Holly, and when developed into a specimen is a grand ornament to any good garden. This Holly endured the severity of last winter well in the south. Can any of your numerous correspondents say how it succeeds in the north or in the neighbourhood of smoky towns?"

— "LANCASTRIAN" writes—"EULALIA JAPONICA VARIEGATA is a beautiful grass-like plant, the variegation being so

clearly marked, and the white so much purer than the older forms. It is perfectly hardy, and is worthy of being largely planted either in a mass in suitable position on the lawn or at the front of borders of shrubs. In this position it is very conspicuous, and shows to great advantage when surrounded by the green foliage of the shrubs."

— THE same correspondent says—"EULALIA ZEBRINA is well named, and is not only distinct in character from the other, but a striking and good variety. It produces a very fine effect when planted alternately with the above. This is also perfectly hardy."

— "SCIENTIA" finds ASTER MACROPHYLLUS a good dwarf variety, and worthy of a place in any collection of herbaceous plants however limited. Aster ptarmicoides is a striking companion to the above, its flowers being white.

— "L. D. W." considers that "no border of hardy flowers should be without a few plants of STATICES. They are as valuable in the herbaceous garden as a good plant of *S. profusa* is in a collection of greenhouse-flowering plants. They are light, elegant, and distinct. The following are two beautiful varieties—*S. Limonium* and *S. Tomentella*, the latter being the more elegant."

— IN these days of elaborate and expensive ORNAMENTAL CATALOGUES it is pleasing to observe some attempt at combining originality and attractiveness with simplicity. A very creditable and novel example of this kind from Erfurt is now before us. It is of moderate size, the cover having an oblong chocolate-coloured centre, upon which the name appears; surrounding this is a buff-coloured band, upon which is neatly gummed a neat wreath of dried Grasses, the tips of Fern fronds, and blue flowers resembling a *Centaurea*, the colour of the latter being admirably preserved. This is very carefully and lightly done, so that there is no approach to heaviness, while it imparts a novel and pretty appearance to the cover; but it is not durable.

— MR. C. WARMINGTON, writing from The Gardens, Penllergare, Swansea, sends the following note respecting a fine VANDA CÆRULEA—"In the Orchid house here we have one plant of *Vanda cærulea* with four spikes of flowers. The two strongest spikes measure 2 feet long, with eighteen flowers on one spike and seventeen on the other. On the two weaker spikes there are fourteen and twelve flowers respectively. Some of the flowers measure $3\frac{1}{2}$ inches in diameter."

— IT is with regret that we announce the DECEASE OF JOHN RUSSELL, ESQ., OF MAYFIELD, FALKIRK, N.B., which took place on Monday, the 17th inst. Mr. Russell was a liberal patron of horticulture, and one of the first in Scotland to form a collection of Orchids. His original collection was dispersed at Stevens' rooms a few years ago, but another and larger one has been since formed. Famous as was his first collection of Orchids, his attention was by no means confined to these. Tree Ferns were also, until lately, largely represented at Mayfield, and large numbers of other stove and greenhouse plants were cultivated. The outdoor collections of Conifers, Japanese Maples, shrubs, and trees are unique and extensive. Although not a large establishment, Mayfield is perhaps one of the richest in plants in Scotland. This indicates somewhat the position of the late Mr. Russell as a horticulturist. For many years Mr. Russell was Provost of Falkirk, in which capacity he rendered good service to the town. A year or two ago his services were publicly recognised by presenting him with his portrait in oil by one of the first artists. It now adorns the Council Chamber.

— WE learn from the schedule received that the BRISTOL

CHRYSANTHEMUM SOCIETY will hold their annual Exhibition in the Victoria Rooms, Clifton, Bristol, on Nov. 16th and 17th. Prizes are offered for all the chief sections of Chrysanthemums; miscellaneous cut flowers, plants, and fruit also being provided for. Special prizes form a distinct feature, over fifty being offered in twenty classes. An Exhibition of Chrysanthemums and fruit will also be held at Bath in the Assembly Rooms on Nov. 23rd and 24th.

— THE annual meeting of the Durham, Northumberland, and Newcastle Horticultural and Botanical Society was held in the Alexandra Hotel, Clayton Street, Newcastle, under the presidency of Councillor Thos. Gray, the Treasurer. The balance sheet was read, which showed a deficiency of £396 1s. 3d.; this was partly accounted for by the inclemency of the weather during the Society's shows. The Society this year held no autumn exhibition to keep expenses down, but in future they will be again continued. Considerable discussion arose as to sending members their tickets before their subscriptions were paid, for in the years 1878 and 1879 the Society lost over £120 by people not paying their subscriptions, and for the last two years they have not sent any till the money was paid; but this was not found to act well, so the tickets will be sent as heretofore. The following members were elected on the Council for 1882—Messrs. Dinning, R. Beall, H. Majall, W. C. Forster, G. J. Dean, A. Tindall, and H. G. Watson. The Earl of Durham was elected President, and Alderman Foster Vice-President.

— THE following GARDENING APPOINTMENTS have recently been made—Mr. Thomas Richards, late gardener to Richard Paver Crow, Esq., Ornam's Hall, Boroughbridge, Yorks, has been appointed head gardener to Mrs. B. P. Smith, Ferndale, Burgess Hill, Sussex; and Mr. John Richardson, late gardener to E. F. Duncanson, Esq., Nutwood, Bickley Park, Bickley, Kent, has been appointed gardener to Count Gleichen, St. Bruno, Sunningdale, Berks.

— MR. G. BERRY thus describes in the last issue of the *Journal of Forestry* a REMARKABLE SILVER FIR AT LONGLEAT. "Any tree that has attained a height of 144 feet in Britain may, I think, be fairly entitled to be considered remarkable. Such was the height of a Silver Fir cut down on Saturday, September 17th. It was the highest tree in Longleat Park (probably the loftiest tree in Britain), and formed one of a group of nine Silver Firs, standing on rather an elevated level piece of ground. The site is fully exposed on the north-east side. Its dead withered top has been conspicuous in the group for several years, and it was evident from the appearance of the tree that it was gradually dying from the top downwards; doubtless, however, the severity of last winter hastened its death. The belt is quite sound for about 60 feet up, where it divides into two heads. Although it was the highest tree in the group, it was by no means the finest and bulkiest specimen, as it only girthed 10 feet 10 inches at 5 feet above the ground, and contained about 350 feet of timber; whereas the largest tree measures 15 feet 3 inches at 5 feet up, and contains between 400 feet and 500 feet of timber; its height is 138 feet, and it is still in full healthy vigour. The age of the group I should guess to be nearly two hundred years old."

— *Land and Water* gives the following account of the force exerted by FUNGI IN RAISING HEAVY WEIGHTS—"Some years ago the town of Basingstoke was paved, and not many months afterwards the pavement was observed to exhibit an unevenness which could not easily be accounted for. In a short time afterwards the mystery was explained, for some of the heaviest stones were completely lifted out of their beds by the growth of large Toadstools beneath them. One of these stones measured 22 inches by 21, and weighed 83 lbs., and the resistance afforded by the mortar which held it in its place would probably be even a greater

obstacle than the weight. It became necessary to repave the whole town in consequence of this remarkable disturbance. A similar incident came under our own notice of a large kitchen hearthstone, which was forced up from its bed by an undergrowing fungus, and had to be relaid two or three times, until at last it reposed in peace, the old bed having been removed to the depth of 6 inches, and a new foundation laid."

— FROM a number of districts communications have reached us relative to the GREAT STORM OF THE 14TH INST. Never since the memorable 18th of January last, and the tornado that swept away the Tay Bridge, does the force of the wind appear to have been so destructive as last week. Gardens in all parts of the country have been considerably damaged, but the effects of the storm are most noticeable in the destruction of trees which has occurred. In the neighbourhood of the metropolis the parks have all suffered more or less in this respect, some of the oldest specimens of timber having been uprooted. Young and recently planted trees have also been greatly injured; in one instance, we are informed that several hundreds were completely blown out of the soil. In Greenwich Park twenty-three large trees, principally Elms, were blown down, and about the same number of small trees, including several fine Hawthorns. The park in all directions was covered with large boughs. From St. Mary's Gate to the Broad Walk six large Elms were down, and in the Broad Walk itself one large Elm completely blocked the way. But it was in the Green Walk, a little to the east of the Royal Observatory, that the greatest damage was done, and within a space of 200 yards in circumference not a tree was left standing. At Windsor many of the fine old Elms in the Long Walk suffered severely, large limbs being torn off by the wind. Many of the trees round Windsor Castle, in the Great Park, and at Virginia Water, were also uprooted. The gale did much damage to the timber in the various College grounds at Oxford. Four of the celebrated trees in the Broad Walk were destroyed, and twenty-four in the walks around Christ Church Meadow. At Leamington the ornamental trees in Jephson's Gardens and the Holly Walk have suffered severely. Similar reports are received from all parts of Warwickshire. There has been a great destruction of timber on the Langley estates of Sir R. B. Harvey, M.P., and a correspondent of a daily contemporary states that "the woods look as though they had been subjected to a heavy artillery fire." The Duke of Bedford's park at Woburn has suffered in a similar manner, hundreds of trees having been torn up by the roots. The gale appears to have been felt with great severity near Coventry, for it is reported that within a radius of three miles of that town five hundred large trees have been uprooted.

— FROM many other districts we hear similar accounts, but the three following letters from widely separated counties will convey some idea of the general prevalence of the storm.

Mr. George R. Allis, Old Warden, Biggleswade, Bedfordshire, writes—

"The gale of Friday, 14th inst., was severely felt here, uprooting several fine trees of Oaks, Elms, Cedars, and Arbor Vitæ in the pleasure grounds; and the damage done to the trees in the park has made it a scene of desolation from every point of view. Large branches of Oaks and Elms have been torn off by the fury of the gale like matchwood. On a neighbouring estate a large Cedar of Lebanon has been blown on the conservatory adjoining the mansion, doing considerable damage to the mansion as well as the conservatory. Nearly three-quarters of an inch of rain fell on the preceding night."

Mr. W. Bardney, Norris Green, Liverpool, observes—

"On Friday last a terrific storm of wind, sleet, and rain was witnessed in this neighbourhood. From various accounts its fury was unprecedented since 1839. The damage done in the gardens here is considerable, the majority of the trees being broken and dashed considerably, while seven or eight were entirely uprooted. One fine old Elm, which had an immense symmetrical head and its lower branches sweeping the ground, was torn up with fully two tons of soil to the

roots. Pyramid Pears and Apples were also much damaged. Raspberry canes suffered considerably, and are broken off level to the wires to which they were secured. Much glass was broken, especially in those houses within a short distance of trees, the branches that were broken off being carried with the wind a considerable distance. Lettuces and other winter salads present a shattered appearance, the leaves being blown down to-day as if that been subjected to a severe frost. Parsley is much broken, and Broccoli and other winter vegetables have suffered proportionately."

Mr. R. P. Brotherston, Tynninghame, East Lothian, writes—

"We have had a storm from the north this forenoon which, I am afraid, has destroyed all our garden flowers. Most of the fine trees near the house, as well as in other parts of the ground and woods, have been blown down to-day. I saw ten trees in as many minutes fall like a row of ninepins at the beginning of the storm, and similar destruction was going on over 2000 acres."

[Many letters reached us too late for insertion.]

PEAR v. QUINCE STOCKS FOR PEARS.

YOUR fruit jottings interest me, also the article on Pears on Pear stocks on page 329.

In my case it was a great mistake to plant Pears on Quince stocks. For a few years the trees did well, and for their size bore fair crops of fruit; after about ten years the foliage became yellow in July, and the fruit small in size and poor in quality. To have autumn tints in July is not agreeable. Pear trees on Pear stocks planted at the same time are still with green leaves, and have given quite as good crops in their early years as those on Quince; and it cannot be too widely known that by root-pruning, the Pear on Pear stock can be made to produce fruit as early as the Pear on Quince stock, and the Pear stock will outlast several generations of Quince stocks. My soil is stiff with clay subsoil.

Has anyone noticed the early turning yellow of the foliage after Pears have been about ten years on Quince stocks?—ROBERT WARNER, *Broomfield*.

HARDY PLANTS—PROPAGATION.

(Continued from page 330.)

THE preparation of the border and its management having been discussed, something may now be said about procuring the occupants. If you have the command of abundant means this is a very easy matter; but we will suppose that you wish to fill the border as cheaply as possible. In these circumstances the best plan is to order as many plants as you can afford about Christmas time or earlier. When they arrive do not place them in a cold frame, but give them a position in a house where they will grow gently. Some can be divided and potted singly; those that are not in good order for dividing should be encouraged in growth till increase can be effected. Healthy sturdy plants will thus be obtained, and such can be placed out in the borders at any time, and they root in the soil at once. Some may be increased by cuttings, and it is surprising how a large border may be filled by judiciously economising a comparatively small purchase. Again, there are many plants which can be raised from seed, and in every case where this can be done it is best. Florists' flowers are suitable for border cultivation, and I prefer obtaining plants of the best varieties as being the only certain mode of having them satisfactory. Antirrhinums or others that come quite fine from seed I raise myself. By exchanging with your friends you will also be able to add largely to the collection. In dividing plants care must be taken not to go to the extreme, as slow-growing plants take years to become good specimens when divided into very small pieces. Bulbous plants are most cheaply bought by the dozen or hundred. Some of them are expensive to buy even singly, but many fine bulbous plants can be bought cheaply.

As many plants of each kind as are wanted to fill the border are propagated by division, by layers, or by cuttings during the autumn. A layer of old Mushroom-bed material is employed for the plants to form roots in. This causes a quick strong growth and a matted mass of roots to lift with. The other plants are then taken to the rubbish heap, and employed as manure when they are decomposed. Unless marks are placed over bulbous plants it is impossible to lift these, nor is it necessary. As the trenching proceeds just place them into the positions they occupied before dividing the clumps which may have become too large. Small sticks may be placed to show where these are as the work is proceeded with, but most of them will be either above ground or growing before the border is replanted in the spring.

As to arranging the plants in the border, I prefer the mixed plan as being far more effective than any other. There are

certain flowers which surpass others in general effectiveness in their several seasons, and these are planted prominently and in sufficient numbers to impart a decided character to the whole. If you wish the border to yield a successive display of flowers for the longest time possible you must plant for that purpose; if for one season only, say spring or autumn, or both, without reference to the summer months, then you must plant to get effect at these seasons. All our borders are effective during the autumn months; two of them are kept to yield a succession of flowers throughout the whole season of flowers, one for autumn and spring, and another simply for late autumn. Our spring and autumn border is occupied with only free-flowering plants. In spring we have numbers of Crocus clumps in variety, Tulips, and the Polyanthus Narcissus, late Helleborus, large masses of Arabis alba, early Pansies, and plants of similar character. In autumn we have masses of Tritoma, Dahlias single and double, chiefly the single white, which is the best and most effective. Gladiolus brenchleyensis, late Picotees, and Carnations white and scarlet, late Phloxes in three or four distinct colours, Salvia fulgens, and S. patens, early-flowering Chrysanthemums, Pentstemons, Pansies, Japanese Anemones, Aster bessarabicus and A. longifolius formosus, with Marigolds and Enothera Lamarckiana. These are the chief plants employed, and the effect is grand.

The borders at each side of the central kitchen garden path, which is the main one, have been widened to 13 feet each; and in these, in addition to beds of Christmas Roses, Schizostylis coccinea, Lily of the Valley, some of the Narcissus family, and others for cut flowers, the majority of our herbaceous plants are grown. These borders form to me one of the most interesting features of the garden. We have several hundred distinct species of plants in them besides many varieties; several kinds we find a difficulty to keep, and by these means and fresh sorts being annually added there are always a few changes amongst the occupants. I will describe in the next paper the plants employed for these borders and the style of planting.—R. P. BROTHERSTON.

GRAPES AT THE EDINBURGH SHOW.

ALLOW me to add a very few words on this subject and then I leave it. In my last I accused your reporter of "not giving a faithful account of what he saw," and he has now furnished conclusive proof of this. He states this week, that "the marks of syringing were so patent on the berries that these alone would have prevented them, if in other respects good, from taking a place as first-rate examples," &c. Now here is a plain and specific enough statement, and yet except, perhaps, in the case of the Muscats, it is totally inaccurate. The Muscats were syringed once or twice during the season, and the bunch sent may have shown it in a very slight way; but in the case of the other seven kinds exhibited, never a drop of water touched the berries or the fruit from the time they were started until now, and your reporter did not see a vestige of what he says was "so patent." I will pay his expenses up and down to here if he can find one bunch of those seven showing a speck of injury from such a cause. Bunches are nearly all hanging yet and to be seen. This fact taken in conjunction with your own note on the Grapes sent to your office speaks for itself; but when a man deliberately states that such and such things "were patent," which means more than usually apparent, but which never existed, what is one to think of his other assertions?—J. SIMPSON, *Wortley, Sheffield*.

WINTERING BEDDING PLANTS.

IN many cases the most tender bedding plants may not be so numerous as they were some years ago, but wherever there is a flower garden Pelargoniums and other plants requiring protection in winter are employed. These cause much work in propagating and hardening in spring, and they also require considerable attention at the present time in storing them for the winter. Until there is danger of their being injured by frost all bedding plants should be as much exposed as possible.

In autumn we have a decided objection to striking cuttings in bottom heat, or, indeed, in artificial heat of any kind, as it is a very bad start for them, especially where much heat cannot be supplied in winter. Every cutting that can be is rooted in the open air and wintered in a cool frame. Pelargonium cuttings are taken in August and inserted in pots or boxes placed in the open air fully exposed to the sun, and there they should remain until frost is approaching. In November they are placed in a vinery or other house where there is sufficient heat to keep frost out. Iresines and Mesembryanthemums require a little more heat in winter. At the present time we have ours stored on a shelf near the glass in an intermediate house, and as they were taken from

a cold frame they are very dwarf and healthy. Pelargoniums we find take up less room unless in boxes; of other plants we place from six to ten cuttings in a 3-inch pot. A large number of stock plants can thus be stored in a small space in winter.

Coleuses are the most difficult plants to preserve for the next four months. A warm dry place suits them best, but as they are so easily increased in spring a large number of them need not be stored now. Cuttings rooted some little time ago may be kept fresh and healthy with extra attention, but two or three old plants in pots throughout the summer, and grown hardy, are the easiest to winter and they give plenty of cuttings in spring. Although they may lose almost every leaf, so long as the stems are in good

condition they will soon form abundance of shoots. *Centaurea ragusina* is a difficult plant to root in autumn and keep good throughout the winter; old plants which have been plunged in pots in the open air throughout the summer are the least troublesome.

Carpet-bedding plants, such as *Alternantheras*, may be treated like the *Iresine* or *Coleus*. Hardier plants and many succulents may do well in cold frames under glass, but never allow frost to injure a leaf, beware of superfluous moisture, and ventilate freely whenever it can be done. Water should never be applied when the frame is being closed for the night, or it may be for days when a storm should follow. Water thoroughly when the venti-

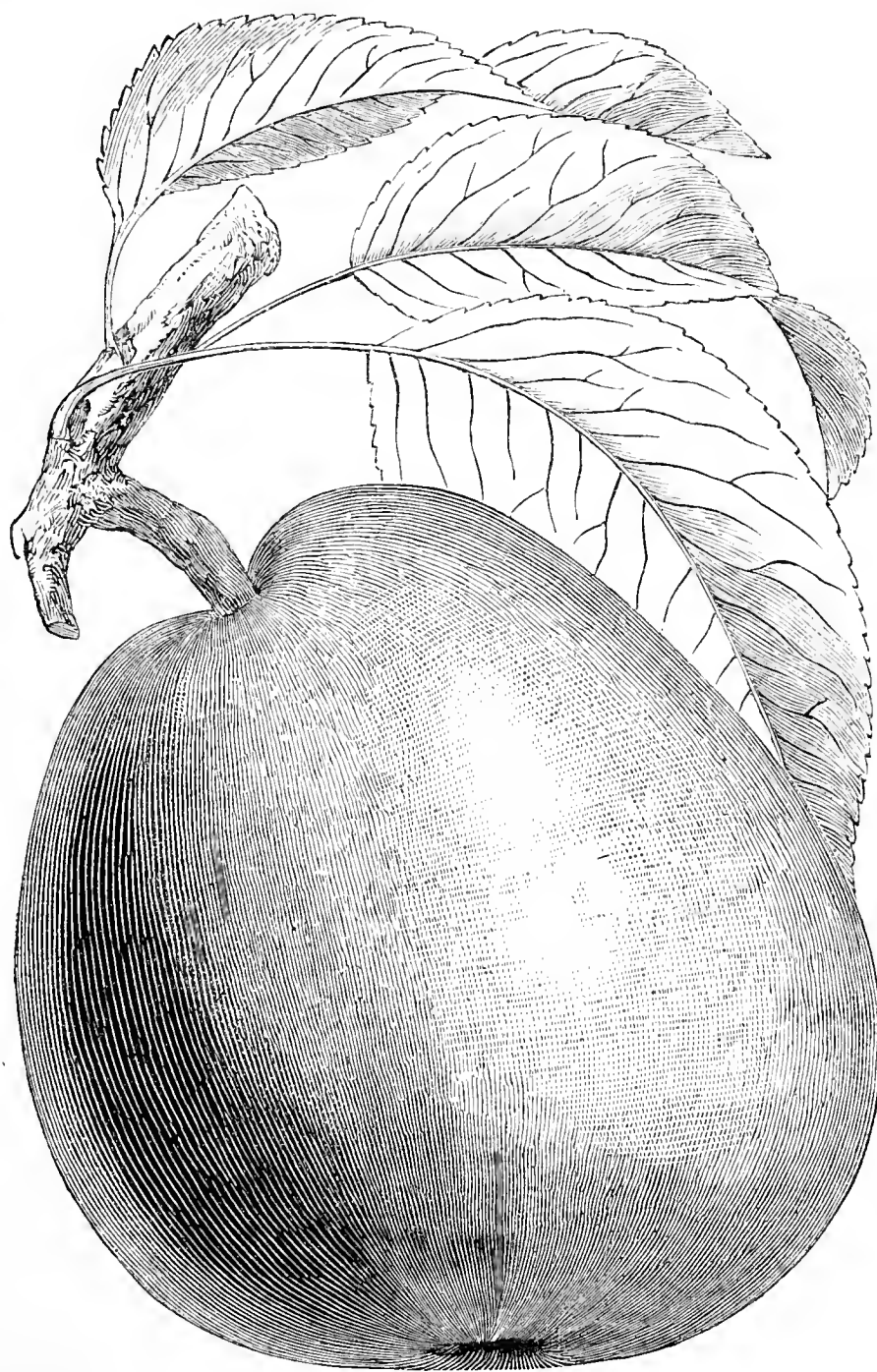


Fig. 62. —PEAR DOYENNÉ BOUSSOCH.

lators are first opened, and the leaves will soon become dry and little or no loss will occur from damp, which is too often the case in winter through inattention to this.—M. M.

DOYENNÉ BOUSSOCH PEAR.

AMONGST Pears in season in October and until the present time in some districts this is perhaps one of the finest in appearance, and is often of good quality when "caught at the right time." A noted fruit-grower has written to us, "Doyenné Boussoch is a splendid Pear, but it is like a flash of lightning," alluding to its rapid decay after being ripe. Some time ago Mr. Record wrote as follows in reference to Doyenné Boussoch—"I have proved it to be a Pear of the finest quality. It is large and noble in appearance, of rich flavour, flesh melting and juicy, skin very thin, and when ripe of a russety lemon colour. It is also a capital cropper,

and does well against a wall with an eastern aspect in the south of England, but northwards it would need a good south wall. Worked on the Quince stock the tree has a moderately vigorous growth, and generally forms plenty of fruit buds; it also does well as a pyramid, though it ripens somewhat later. I have had it in use from the latter part of October to the middle of December, and it was always welcomed at table as a first-rate dessert Pear." Judging by specimens that have been sent to us there are evidently trees misnamed Doyenné Boussoch. The annexed engraving of a fruit grown by Mr. Haycock of Barham Court is a characteristic representation of a well-grown specimen.

AGAPANTHUS UMBELLATUS.

THIS is a plant which deserves a prominent place in every flower garden. Its beautiful light blue flowers and dark green foliage have a very pleasing effect, and it is a valuable addition

to our autumn-blooming plants. I have under my charge a bed of the above which I think is worth a note. This bed was formed in April last year with eighteen small plants, which survived the past trying winter without injury, and have now eighty-seven spikes of bloom, many of which bear a hundred flowers each. It is one of the best plants I know for flowering in autumn. My mode of treatment is as follows:—The bed is made of fresh loam and leaf soil, with a liberal sprinkling of coarse sand. In this the plants make vigorous growth during the summer, and on the approach of winter I have some dry leaves worked in between the plants, and the whole then covered with turfy soil. In March this covering was partly removed, and I found the plants had already made some growth, and by the middle of June the bed was one mass of rich foliage and the flower spikes were appearing. During the summer several waterings of liquid manure were given, and the result has been most satisfactory.—A. CAMPBELL, *Ashford Gardens*.

HOW TO KILL THE PEAR SCALE.

THAT is the heading that appeared in the *Journal of Horticulture* (page 285), from your correspondent Mr. W. Taylor. Anyone who is so unfortunate as to have scale-infested trees must thank Mr. Taylor for bringing the subject before the public. The writer of the letter introduced by Mr. Taylor recommends the affected trees to be painted all over with boiled linseed oil in January or February, but adds this caution: "Avoid oiling the bloom buds." I believe the plan to be a most effectual one; but I prefer and use pure whale oil for this reason: The whole tree can be painted over—bloom buds and all—without any bad effect, but rather otherwise; and if properly done it is an effectual cure, and may be laid on either in December, January, or February with safety on any sort of fruit tree.—JOHN DOWNIE, *Edinburgh*.

THE ROSE SEASON OF 1881—A RETROSPECT.

It is difficult now-a-days to say when the season for Roses begins and ends, for what with Teas and Noisettes on walls and sunny spots in early spring, and late blooms of Hybrid Perpetuals and Teas which all those who grow Roses in any quantity can command until the frost sets in, there are but few months in the year when Roses may not be had; but to the minds of most Rose-growers the Rose season means the exhibition season—means, that is, the quality of Roses as they are seen on the exhibition table. And when July closes most Rose-growers pack up their green boxes, clean and store away their tubes, and regard their work in that respect as closed for another twelve months. And it is in this sense, then, that I must answer the question so often put to me—What do you think of Roses this year? That I have some opportunity of judging may, I think, be fairly conceded when I say that I have judged at the following Shows—Farningham, June 29th; Canterbury, June 30th; Maidstone, July 4th; Reigate, July 5th; Cardiff, July 6th; Oxford, July 7th; Alexandra Palace, July 9th; Uppingham, July 11th; Birkenhead, July 16th; Leek, July 19th; Helensburgh, July 21st; Newton Stewart, July 22nd; Newcastle, July 27th; and Manchester, August 24th; that I was also present, of course, at our National Society's Shows at the Crystal Palace and Sheffield, although unable, owing to my duties as one of the Secretaries fully occupying my time, to act as Judge; and that thus in all parts of the kingdom I have had during the exhibition season an opportunity of seeing Roses which perhaps no one else has had. A judge, it need not be said, has peculiar facilities for seeing the Roses. He has no prejudice in favour of his own flowers, as so many even of the best growers have. He sees the Roses at their best before crowds come in to heat the room or the tents and cause them to lose colour; and if he has been, as I have, year after year honoured with the confidence of Rose societies, he can the better compare those of the present year with those which have preceded it. If, then, my judgment is wrong—if the conclusions I draw from what I have seen seem to other competent judges as incorrect—the fault must be in myself, and not because I have lacked opportunities for judging.

The terribly severe winter of 1880-81 was but a poor preparation for the exhibition season. Tales reached me from all quarters of the havoc that had been wrought amongst Roses. One amateur wrote that he had lost four hundred Teas and Noisettes, another that all his dormant buds were killed, another that he had not a standard Rose left alive, and from all directions that the Roses were killed to the snow line. Those that were left, however, broke well; but then came those late frosts which have for many years visited us in May and June and destroyed the hopes of many a grower. The early shoots were killed, and with them the finest and most promising buds; and consequently, as the season

drew near, I felt that we could not expect a grand Rose year. And so it has proved; and so, I think, everyone with whom I have talked upon the subject has agreed to. It is no discredit to Rose-growers, either professional or amateur, to say that no one has exhibited in their usual form. I cannot call to mind any one stand of any considerable number of which I could say that it was perfect—no such stand, for example, as the thirty-six which Mr. Jowitt exhibited at Birkenhead in 1880. Nor were individual flowers of such pre-eminent merit as that they will haunt one's memory for a long time to come—no such blooms as the Général Jacqueminots of Mr. Cranston, the Niphetos of Mr. Jowitt, the A. K. Williams of Mr. Wollaston in 1880; for although the bloom of the latter Rose shown by Mr. Jowitt at Wirral was grand, yet the colour was somewhat gone. We never went to an exhibition but excuses had to be made; and we may be sure of this, that when they are, those who make them feel that they are not up to the mark. Yea! I think some growers must have been very much surprised at the position which they took, unhopd-for prizes dropping into their lap. Take it all in all, the provincial Show of the National Rose Society at Sheffield must be considered to have been the finest show of the year, not so extensive as the metropolitan, but in the general quality of the blooms superior to it; and yet there was much there we might have wished better. True, the terribly hot weather had had an injurious effect, and perhaps the wonder was that they were so good.

In looking through the lists of awards it is curious to remark how situation and climate have influenced them. Thus, in the earlier shows Mr. Cant of Colechester was the most successful nurseryman, and at the Crystal Palace Mr. Baker of Exeter the most successful amateur; afterwards the Cranston Company carried all before them, and Mr. Jowitt was equally to the front as an amateur; and then when the later shows came on the north asserted its rights. At Newcastle Mr. Whitwell of Darlington beat Mr. Jowitt, and at Manchester no grower for sale could come near Messrs. Mack & Son. It will never be possible to fix a date for an exhibition that can satisfy both northern and southern growers, and therefore it is well that there should be these different exhibitions, that all parts of the country may share in them. And here let me ask, As the National Rose Society is now looked up to as the central sun round which the rosy planets are to revolve, might it not be possible for the authorities connected with our provincial societies, as soon as the fixtures for the National are made, to make theirs also? and if these were publicly announced, and any of them were seen to elash, arrangements for preventing it might be made. I call to mind one or two occasions when such needless clashing did take place, much to the injury of both shows. There was one show this year the date of which was twice altered simply because the date of one of the larger exhibitions had not been fixed. And there is no reason why it should not be done, for it is easy now after a few years' experience to say what will be the most convenient time for an exhibition at Launceston as in London.

I never recollect a season when so little was known of the new Roses, I mean the French Roses. When prizes were offered for new Roses the principal portion were either English-raised Roses or else the characters of which we already knew. Nor were there many new candidates for favour amongst our English raisers. Neither at the Crystal Palace or at Sheffield was there anything remarkable. Indeed at the latter place the prize was not awarded, and considerable doubt was expressed as to that at the Crystal Palace. Later on in the season The Cranston Company exhibited a very fine flower called Mrs. Gretton; while Duke of Teck, Harrison Weir, and Countess of Rosebery maintained their position pretty much in the order that they are here placed. There may be amongst the French Roses some A. K. Williams or Marie Baumann, but as yet they are unknown to fame. Conjectures are indeed given by several of our leading growers as to the merits of some of the varieties, but it is evident that they are only tentative, and that they have not had many opportunities for judging.

"What about the Stapleford Roses, or Pedigree Roses as they are sometimes absurdly called?" I have been repeatedly asked. Well, I have seen no cause to alter in any way the opinion I expressed upon them last season. They have hardly ever made their appearance in an exhibition stand, and as exhibition Roses they are an entire failure. I saw one at a provincial show as hard as a bullet. "I have had," said the disgusted exhibitor, "that brute under a glass for three weeks, and he is as hard as ever." The same thing is said of them as pot Roses with the exception of Duke of Connaught, and this, from its colour and freedom of bloom, is likely to be useful for forcing for cut flowers. Abroad, I understand, they are more appreciated, the warmer climate of both France and America suiting them better; although I perceive that Messrs. Ellwanger & Barry, the well-known American nurserymen, in

their catalogue which I have just received, say that they have not been proved in the open air as yet, and only speak of their value as pot Roses under glass. I think their failure is a matter to be much regretted, for it seemed as if a right line had been taken by the raiser to endeavour to combine the colours of the Hybrid Perpetuals with the free-blooming character of the Teas; but in some manner the cross has not succeeded. It is just possible that from these something may be obtained; but it is rather a Nemesis on the raiser, who so boldly stated that everyone before him had been wrong, to be thus in the wrong himself. A successful hybridiser has much to learn of Nature's secrets, and these are not generally given to the man who rushes into it, but to the patient toiler who learns as he goes on, who essays not to teach but to be a learner.

There can be little doubt that the Rose is not only not losing its popularity but steadily increasing it, and that not a little of this is owing to the operations of the National Rose Society few can doubt. Its authority is as much recognised amongst Rose-growers throughout the kingdom as that of Lord's among cricketers, and its medals are eagerly sought after as a testimony of prowess and skill. And here let me repeat the note of warning I gave last year as to the spirit in which its competitions should be entered into. Let exhibitors be careful that they are actuated by the desire of honour in the contest rather than by the quantity of money to be gained. It might not be well to revive the Laurel and Parsley crowns of the Olympic games, nor must the consideration of money be left out of sight; but surely it is not the one thing which the exhibitor has before him when he enters into the contest. If it be so it will lead to unseemly wrangling and strife and to the injury of the society. And now again the season of preparation is at hand: catalogues are issued, orders given, beds prepared, and hopes eagerly cherished of success in the future. May it be so, and may the year 1882 see such an exhibition of the queen of flowers as has never been seen before; and may you and I, good reader, be there to see it.—D., *Deal*.

CULINARY PLUMS.

HAVING given on page 308 a list of Plums suitable for dessert, some of the leading culinary varieties may now advantageously receive consideration. Early Prolific does equally well as a dwarf or standard, and is an early and great bearer. Where Plums are required early it should be grown against a south wall, and it then ripens earlier by a fortnight, the quality being much improved, indeed is not unsuited for dessert. It ripens usually at the end of July, being closely followed by Czar, which has large red oval fruits, bearing well as a standard or dwarf, and is even suitable for dessert when well ripened. The fruit does not crack with wet, and it is one of the finest culinary sorts. This is a seedling raised by the late Mr. Rivers, obtained from Prince Englebert crossed with Early Prolific. Sultan, another of Mr. Rivers' seedlings, ripens about the middle of August, and is a great bearer, and may be described as an early and hardier form of Prince of Wales. Prince Englebert is not only a large Plum, but one of the finest for culinary purposes, and when well ripened can be used for dessert, the fruit having a fine appearance. Mitchelson's is a fine kind for preserving as well as cooking, and has a flavour not unlike a Damson. It is first-rate as a standard, and bears profusely. Prince of Wales, though a capital sort, and the trees great bearers, is not very hardy, and in cold localities requires to be grown against a wall. Pond's Seedling is another of the large red Plums, and one that bears abundantly. The large Plums are preferably grown as espaliers than as bushes or pyramids, and are more readily protected from birds, similar remarks applying to White Magnum Bonum, which is not only one of the finest preserving Plums, but grown against a wall is good for dessert. Victoria is very prolific in any form, but is very much finer against a wall than as a bush or standard. Autumn Compôte is excellent for preserving and bears freely, as also is Belle de Septembre, and preserved affords a fine highly coloured syrup, that of the other being pale in colour, but with a peculiar agreeable acidity. Diamond bears abundantly as a standard, and is one of the very best cooking and preserving Plums. Winesour is a good bearer when aged, and is highly esteemed for preserving, its briskness being relished by those that are cloyed with the sweet Plums. Wyedale much resembles Winesour in appearance, but ripens three weeks or a month later, and is a very valuable late variety, bearing abundantly even in exposed situations. It is capital for cooking or preserving, and is brisk and agreeably flavoured. Coe's Late Red does not bear freely in a young state, but from its lateness, ripening in late October and early November, is worth a place.

Of Damsons, Farleigh or Crittenden's Prolific is a prolific bearer.

The fruit, however, is not so large as the Prune Damson, in fact, no larger than the common, but it bears early, which is not what the others do. For quality, the Prune Damson is far ahead of any, and though not a good bearer when young, bears freely when the trees are a little aged. Dalrymple is similar to the Prune, and the tree is not so strong a grower; it also bears abundantly and is ripe in October.

Bullaces are esteemed by some, I suppose, for their briskness, and as they usually bear freely a tree or two of each will suffice. The Black or Sloe may be passable after early frosts, but is, I think, too acid. Essex Bullace is larger and not so sour as the White Bullace, and Royal is certainly brisk enough, and with plenty of sweetening may be made agreeable. As it ripens in October and hangs some time it is useful as a late fruit.

Acidity in Plums for culinary purposes is by some looked upon as indispensable, hence Gisborne's, a small yellow Plum ripening at the end of August, is considered good, it being very juicy, with brisk acidity, and a great bearer.—G. ABBEY.

COTONEASTER MICROPHYLLA.

AMONGST hardy shrubs suitable for covering walls and trellises, I think none is more elegant than the subject of these remarks. On paying a visit to a friend residing in Wiltshire a few days ago, I was surprised to find how extensively it is grown in some parts of that county and in Somerset. Many cottages that are built a little back from the main thoroughfare are furnished with porches either of brick, stone, or trelliswork. These little porches are invariably covered with *C. microphylla*, and nothing could possibly be more trim and neat for the occasion. In many cases I noticed the front of the cottages was covered entirely with it in addition to the porches. The cottagers are fully aware of its value, and I think it may be used advantageously in many such places that are now frequently allowed to remain unsightly. *C. microphylla* was introduced from Nepal in 1825, and having been in this country so many years, it is surprising that it is not more frequently met with. It is by no means fastidious, for it thrives in any ordinary garden soil and endures much drought. It is easily propagated, either by means of layers or seeds, plants by the former method being of course the most readily obtained. It is also quite at home planted on large rockeries, for massing in front of shrubby borders; and I have seen it used with good effect tied to an upright stake, and the long arching shoots when thickly berried are very beautiful.—W. K.

A WEEK IN LONDON.

WINDSOR.

THE elaborate descriptions which have been published of Windsor and Frogmore from time to time leave but little to be written of the beauty and magnitude of the grounds and gardens. From various parts of the park can be obtained splendid views of the Castle, but none was more impressive than that at the entrance at the north-east. The hill side which sloped sharply up the Castle was covered with fine trees, the numerous examples of Mountain Ash being heavily laden with their red berries, and were most imposing. Another grand view is obtained from the long avenue of fine Elms. In passing through the grounds I was much impressed with the grand timber which abounds, especially the Elms, which appear to have been more largely planted than any other forest tree. Many of them are giants in size, and doubtless have stood for centuries. Oaks also freely abound, one being especially noteworthy, having a fine even trunk some 36 feet or more in circumference. Some care is taken of this monster, for when a limb is lost the wounds are carefully covered to keep out the wet. Near this stood a specimen of *Wellingtonia gigantea*, said to be one of the first specimens planted in this country, and which was in those days protected with a handlight and well covered every night during cold or wintry weather. This tree is the parent of a fine avenue of trees planted alternately with Walnuts. The *Wellingtonias* were all raised from cuttings, and are now fine trees, all of similar height and even throughout. Many other grand Conifers exist in suitable portions of these grounds. *Cedrus atlantica glauca* was a wonderfully large well-furnished specimen, and near to it was a smaller specimen growing freely and planted by the Shah of Persia. *Pinus Pinsapo* was also noticeable. The silvery foliage of *Acer Negundo variegata* in sheltered positions was most conspicuous and very striking. These plants had evidently withstood the severity of the past winter uninjured, while many other shrubs were cut to the ground.

The private gardens are by far the most beautiful, and are

known as the Slopes. These grounds are picturesque, with winding walks which rise and fall according to and in keeping with the grounds. In these grounds there are some good Conifers and specimen Hollies growing luxuriantly on a chalk formation, which in some instances comes very near to the surface. The subsoil varies considerably at Windsor from chalk to gravel, but the trees flourish remarkably well, and many kinds, especially the Hollies, do much better than I should have supposed with the chalk so near the surface. The rock garden, which is situated in this portion of the ground, is naturally constructed, and was designed by the late Prince Consort. So well has the work been executed that it is difficult to determine whether it is natural or artificial. The grounds were well and beautifully kept, not a weed to be seen, and the grass slopes are in excellent order.

The terrace or flower garden, which is near to the east front of the Castle, was really grand. Not only was it well kept, but by far the most appropriate and judicious style of flower gardening that could have been employed. If the system too generally practised was carried out at Windsor it would be entirely out of harmony with the Castle and surroundings. Happily this is not the case, and the garden has been judiciously arranged, and what might have looked flat and monotonous was broken and beautifully varied by the introduction of Conifers. For example, one bed had a double row of Golden Hollies about 3½ feet in height, every plant even and well proportioned; between them a row of Ricinus, and between the Hollies a plant of tall Ageratum, then a band of scarlet Pelargoniums, followed by *Centurea candidissima*, and edged with other suitable plants. Two or three other beds had in the centre four specimens of *Cupressus Lawsoniana* 6 or 7 feet high, and, like the above, close and even. The compact growth of these plants would lead anyone to suppose it was some other variety; but I was informed the young growths of the plants were pinched off once or twice during the growing season to keep them in bounds. This accounts for the compact and even habit of all the Conifers used in this garden. In some beds Golden Yews were employed, in others *Cupressus L. erecta viridis*, *C. L. gracilis*, *Retinospora plumosa*, and *R. p. aurea*. Some of the best Thujas were employed, such as *T. aurea*, *T. elegantissima*, and *T. orientalis aurea*, and other choice kinds, varying in height from 18 inches to the height of the *Cupressus Lawsoniana*, which was the tallest employed. Some were of pyramidal growth, while others were of a bush or cone shape. The shrubs throughout were most tastefully planted, and the golden kinds arranged evenly over the garden, and contrasted admirably with the green-foliaged varieties. In some beds as many as three rows of shrubs were employed, and in one of these beds, containing Silver and Golden Hollies intermixed with Petunias and Verbenas, the effect was very striking.

The beds devoted to carpet bedding were not numerous, but they were very neat, and contained in the centre some of the smallest Conifers, such as *Retinospora plumosa aurea* and *Cupressus L. erecta viridis*. Many plants used for carpet bedding was freely used in the other beds for edging, quantities of *Colcus*, *Iresine*, and *Alternanthera* also being employed. Perhaps of all the Pelargoniums in flower (many different varieties being used) none looked so well or bright or had stood the wet like the old Waltham Seedling, which has been discarded from many gardens for newer kinds, many not being half so good. The arrangement of the plants in the different beds was good, the subtropical, flowering, and fine-foliage plants being judiciously disposed. It is surprising that more of the beautiful and choice Conifers are not planted for flower-garden decorations. Many gardens I have seen would be considerably improved by their introduction.

On the opposite side of the Castle, which is the grand entrance, is a splendid view of what is known as Long Walk, which forms an avenue of magnificent Elms, planted towards the end of the seventeenth century. This forms one continuous drive in a direct line for three miles; the centre being 50 yards wide, and the two side rides 10 yards each. This avenue has a double row of trees on either side, and the Elms are undoubtedly the finest to be seen anywhere. When planting the trees some forethought must have been exercised, and the future effect well considered. Taking into consideration the length of the drive the trees are none too far apart, and appear from the Castle only to leave a very narrow opening at the further end. After crossing the Park I reached

FROGMORE,

which is about a mile and a half from Windsor. On entering these gardens I was much impressed with the grand effect produced by *Ampelopsis Veitchii*, which entirely covered the walls at the entrance. The leaves were fast turning to that reddish hue so characteristic of this plant. In front of the main range of houses were numbers of flowering plants in full beauty, principally Zinnias, Phloxes, Petunias, Verbenas, and others. The extent of

glass is very great, and yet scarcely equal to the demand. It is surprising the quantity of produce that is sent out from these gardens. To give some idea, the day of my visit fifty dozen Peaches were packed for sending away, besides other fruit and vegetables in the same proportion. The vineries are large and numerous. The earliest is required ripe in April, and are grown in a small house with bottom heat underneath the border, which is found to be an advantage when judiciously applied. Many of the houses were cleared of their fruit, others being ripe for present use, with a number of late houses in which the fruit was fast approaching maturity. In the houses in which the fruit was hanging the crop was heavy and the quality all that could be desired. Many of the Peach houses had also been cleared of the fruit. The trees in most cases are large, the wood well ripened, and the buds plump. Some fine fruit was hanging in a long narrow house, with just sufficient piping to keep the trees safe from frost while in bloom. Additions were being made to this range. The Peaches on the outside walls were ripening well, the crops being heavy, and the fruit of fair size. Melons are largely grown, and a fine crop was hanging in one of the houses, some fruit being ripe while others were in a more backward condition. All the best kinds are grown.

From time to time much has been written respecting the Pine-growing at Frogmore, and the plants and fruit to be seen fully justify the high compliments paid Mr. Jones. The plants are such as Pine-growers delight to see—sturdy and remarkable for strength, and the fruits in various stages of development were very fine. Some are planted out, while others are kept in pots, and succeed well both ways. Good Strawberries in pots are grown. A long lean-to house was devoted to Tea Roses, which had the lights off to assist in ripening the wood. Other large houses are devoted to Azaleas and Ferns, the plants being principally in 6 and 8-inch pots for decorative purposes. The walls supporting the front stage in the fernery was covered with *Ficus repens*, which looked neat. Houses were filled with well-grown *Dracenas*, *Crotons*, and a variety of other stove plants. *Phaius grandifolius* appears to be a favourite, as a fine batch was growing in one of the houses. *Calanthes* are well and largely grown. Gardenias are also grown in large quantities both in pots and planted out, the plants being clean, healthy, and promising a good supply of flowers. *Stephanotis floribunda* receives a large share of attention, and the roofs of several plant houses are covered with it. The large batch of Poinsettias was sturdy and dwarf, and promised well for a fine display in due time. A large house was filled with healthy Palms of various sizes, and the roof covered with *Bougainvillea glabra*. Numbers of *Bouvardias*, *Solanums*, and other plants were planted out on a warm border.

The frames and forcing pits employed for growing French Beans, Potatoes, and other early vegetables in season are numerous. The kitchen garden is 30 acres in extent, and was well cropped with all the best of vegetables, was clean and in good order. The walls were covered with various fruit trees, all of them being well trained, and was carrying heavy crops of good fruit. Everywhere neatness and order prevailed—in fact, the gardens throughout were in excellent condition, and testify to the ability and good management of Mr. Jones, and also reflects great credit upon his foremen, which are nine in number, and the staff of men 140.

Here I shall leave the fine gardens, a brief description only being attempted; but before doing so must thank Mr. Jones for his kindness and courtesy, also his foreman Mr. Chennell, who has the charge of the slopes and flower gardens, and by his intelligence and attention rendered my visit particularly agreeable.—A COUNTRYMAN.

(To be continued.)

ARRANGEMENT OF CUT FLOWERS.

It may interest your correspondent "HORTUS" (307), who is so severe on gardeners in this matter, to learn that it has been the fashion of late in many places to use a large proportion of yellow flowers for table decoration, and give a preference to the "one-colour" system generally. I am acquainted with several noted west-end establishments where this style has been carried out in its most severe form; and it was suggested, and sometimes the decorations were set up, personally by a well-known amateur artist, whose pictures have for a number of years been admitted and hung in a good light in the Royal Academy, and been favourably criticised. I know the artist, and have assisted him at decorations where this style was adopted. On one occasion, when the low flower glasses—like saucers in fact—were filled exclusively with yellow *Nasturtiums* and *Marigolds* bordered by a very meagre margin of Fern and *Geranium* leaves, I protested against the style, but was informed that it was in accordance with the

principles of good taste for a table. I would state also that it has always appeared to me to be a matter of manipulative dexterity more than anything else—the making-up of bouquets—and in watching practised hands at work in Covent Garden and elsewhere I have noticed that, if provided with a suitable variety of flowers, they never paused to think what should come next, but simply “mixed” the colours well and took care not to crowd the flowers, not forgetting to introduce the right proportion of green. This appeared to result in a very attractive bouquet.—MUG.

TEMPERATURES FOR VINES.

As you are discussing the subject of temperatures for Grapes in your pages just now, a portion of the enclosed letter from a gentleman interested in horticulture, and no mean judge of Grapes, may be of some interest. I have not the honour of Mr. Taylor's acquaintance, but I feel sure he will pardon me referring to his excellent practice here. My correspondent writes, “By far the finest sight I saw on my journey, or perhaps will ever see again, was at Longleat—a house of *Hamburgh Grapes* and a house of *Muscats*. The *Muscat* house is 80 feet long, 30 feet wide, span-roofed, and four Vines fill it, one at each corner, and there are between 250 and 300 bunches on each Vine, splendidly finished, and averaging from 2 lbs. to 4 lbs. weight, in every respect perfect. The *Hamburgh* house is 60 by 30 span, also with four more Vines, equally good bunches, and colour perfect. They are grown on the cool system, and set in a temperature far below the usual figure.” In reference to the temperatures practised by Mr. Taylor it will be remembered that he some time ago stated in your pages that he had never attempted to “set” his Grapes in a higher temperature than 55° or thereabout. Some experienced Grape-growers have stated that *Muscats* cannot be coloured perfectly in a span-roofed house, but the vineries at Longleat afford a remarkable example to the contrary.—CORRESPONDENT.

BOILERS VERSUS WATER.

THE remarks by Mr. Ollerhead in the *Journal* of September 29th are interesting for many reasons, and ought to have elicited a response from other horticulturists who have suffered in the same way; but possibly none, or only a few, have tried any remedy. There are several compositions sold for removing and preventing incrustation on steam boilers which should answer as well for horticultural boilers, but the water when mixed with these preparations could not be safely used for other purposes, as it often is now. Soda is very largely used in these compounds, and a quantity of it alone mixed with the supply will prevent much furring, and if the boiler plates are smartly tapped with a hammer occasionally the thin scale as it forms will be loosened and fall to the bottom. This dropping of the scale, together with the ordinary sediment found in any water, would be no detriment in the *Trentham Cornish*, but might choke up the return inlets in other forms. It is said that of the other boilers “We found more or less corrosion in all of them.” Some explanation of the “more or less” might be found if particulars were given of the sizes or forms of boilers, the pipes they had to heat, and the degree of heat maintained. If all had been exactly alike it might reasonably have been supposed that the water alone was at fault, but no mention is made of the pipes being furred up near to the boilers and containing the same hot water. Mr. Ollerhead considers the sort of water used more important than the sort of boiler. This being so, with your permission I will take up the latter question, and at once say that the *Cornish* boiler from its make is more likely to become furred up than other forms, though a large rivetted plain saddle would be about the same. The reason why may not seem so clear at first sight. The “chief seat of evil” was “on the bolts along the sides of the fire”—in other words, on the projections where the fire was hottest and there was the least movement in the water. If there had been no bolts or rivets, as in a smooth welded boiler, the sediment would be more likely to fall to the bottom; and if the greatest heat of the fire had been directed to some other place than the sides there would not have been the ledge formed there. Wherever the fire has most power it should be arranged that the water is constantly changing, as the continual boiling of the water in one spot causes the incrustation. This is one reason why this simple form of boiler is not good. The water is kept at constant boiling point along two-thirds of its length without any outlet, the actual heating of the pipes being carried on at a great disadvantage, enormous waste, and some risk by the remaining third of the boiler, as is more clearly shown by Mr. Ollerhead's own statement that “the passage from the return pipes along the bottom of the boiler and up the end to the flow pipe was perfectly clear.”

It will be said, “Why, then, does it appear that Gray's tubular boiler was nearly choked in the same way, as this is an entirely different construction, in fact the reverse in principle?” The reason will be the same though the application is different. The tubes used in all boilers of this class are so small that the water inside is quickly at boiling point, and the water has to pass so many corners or ledges of the rings, checking it in its way to the outlet, that the deposit is formed very quickly from these causes. The best boiler I will not attempt to decide on, as there are both upright and horizontal forms advertised which will almost answer my ideal—namely, to send the water directly it is warmed into the flow-pipe without waiting for the whole mass of water in the boiler to be heated; and to confine the fire heat entirely within the boiler, while exposing as much surface as possible to its direct action.

The Editor remarks that “defective circulation in boilers is no doubt often the result of furring;” but I would venture to say also that furring is more often the result of a defective circulation in the boiler, as the pipes themselves, even if only 2 inches in diameter, do not become choked. This brings me to another point to be noticed in connection with very large boilers of any kind, as it will be found that this furring takes place more extensively in the large than in the small boilers, the water being the same. The facts stated by Mr. Ollerhead tell most severely against the “one boiler” system for great quantities of piping. Two miles of piping contain about 5000 gallons of water. This is an enormous quantity to heat even if it were all in one cistern, but when the water has to be heated in one boiler (or two containing 200 gallons each), and forced along 10,000 feet of pipes which give off heat at every foot, and which bend about in every direction, checking its circulation, it follows that the boiler must really be a boiler to keep up the heat under such conditions, some of the pipes, too, being probably 400 feet distant. If there were four smaller boilers, each heating a compact group of houses, there would be less need to have the water so intensely hot, and the circulation would be quicker, with less strain on the boiler, consequently less risk of a breakdown, and with a less consumption of fuel. There is a limit beyond which the economy of the one-boiler system disappears. For instance, in a 5000 feet power boiler there will be, as a rule, water equal to 400 feet of piping. For three months of the year it is wanted to heat only two or three hothouses with about 500 feet of piping, but to do so you must heat all the water in the boiler and mains amounting to as much more, when a separate boiler for these houses alone would only contain water equal to 40 feet of pipe, and a proportionately less quantity of fuel would be consumed.

To sum up the real cause of the furring referred to, I take to be, not the mere hardness of the water, but the boiling of this hard water; this boiling being almost necessary with such a quantity of piping, though not so injurious if the form of the boiler or the arrangement of its outlets encouraged a free and perfect circulation.—B. W. W.

HIBISCUS SYRIACUS.

THERE are numerous varieties of this species, the typical form being purple, and both the light and dark forms are very handsome, but they are not nearly so useful as the white variety, the flowers of which would no doubt prove useful for bouquets. The value of this shrub cannot be over-estimated for late summer and autumn flowering. It may be used with great advantage either as single specimens or grouped with other evergreens. I saw it a few days ago used in both ways. A single specimen about 8 feet high and nearly as much in diameter laden with its beautiful white flowers was indeed charming, and smaller plants dotted amongst evergreen shrubs gave the borders quite a lively appearance. It is easily propagated, and when once established in a rich soil soon forms good-sized specimens. Its hardiness need not be doubted, for it has withstood the last two severe winters without being injured in the least. There is a double form, named *Hibiscus syriacus flore-pleno*, which may be grown for greenhouse and conservatory decoration, and plants are extremely useful at this time of the year when flowers are scarce.—W. A. L.

VANDA TERES.

IT is very interesting to read of this Orchid as it is found growing in its native home, and it must be a truly beautiful sight to see it in flower. *Vanda teres* can also be seen well flowered and in good condition in our hothouses in England. It need not be “scorched and starved under a glaring roof of glass,” as is remarked at page 342. This Orchid, like most of its family, has a

season of growth and a season of rest, and under good management it grows almost as fast as a Willow; it will make growths nearly 2 feet long in twelve months. During the time of growth the plants ought to be in a light position in the warmest house, and in winter they ought to be in a position well exposed to the sun and in a temperature of about 50° or 55°. For three or four months in winter very little water will be required—just enough to prevent the plants from shrivelling too much. They do not form so many roots in the sphagnum in which they are potted as they do up the stem. Teak rods should be inserted in the pots for the roots to cling to, and if the plants are syringed with tepid water daily in summer the roots will be formed freely.—J. DOUGLAS.

TOO-MUCH-ALIKE ROSES.

IN the Rev. C. H. Bulmer's selection of forty-eight Roses for the Rose election printed on page 306, there are several Roses considered synonymous, some of which, I think, may be looked upon as very doubtful; therefore a free and fair discussion may lead to a better understanding amongst Rose-growers on Roses closely allied in point of colour. In distinguishing Roses something more than colour must be considered. There is the habit of growth, the size and prominence of the thorns, the shape of the foliage, and many other details which require attention before giving a decided judgment.

Until the list named above came under notice I had never seen it stated that Abel Grand was synonymous with Marguerite de St. Amand or Princess of Cambridge. I have grown the two first-named varieties for many years, and consider them as distinct in habit as any two Roses can well be that are similar in colour. The imbricated form of the flower of Marguerite de St. Amand is most pleasing, while Abel Grand never, or very rarely, has substance enough for exhibition. Exposition de Brie, Maurice Bernardin, and Ferdinand de Lesseps have for a long time been regarded as very much alike, but when we see them exhibited by some of our large nursery growers they appear different, and there is certainly a difference in the habit of Maurice Bernardin as compared with Exposition de Brie or Ferdinand de Lesseps; besides, Maurice Bernardin has more purple in the flower than either of the others named, while Sir Garnet Wolseley is very rigid and erect in its habit, closely studded with prominent thorns, and therefore distinct in growth as well as flower from the others. The variety Reynolds Hole I know well, but Sultan of Zanzibar I have only grown this year. From what I have seen of the cut flowers, however, I am under the impression there is a great difference in the petals. If it is not so, then we must all feel that our home-raised seedlings are no more to be depended upon for distinctness than those sent over from the Continent. Surely such an experienced firm as Messrs. G. Paul & Son, who, I believe, raised both Reynolds Hole and Sultan of Zanzibar, would never have allowed the two Roses to be sent out from Cheshunt unless they were distinct. Again, the experience of such an exhibitor and grower as Mr. Cranston must surely be considered when he sent us that very desirable autumn-blooming Rose Sir Garnet Wolseley.

In the election they are considered and tabulated as distinct. Let me note their relative positions. Marguerite de St. Amand stands twenty-ninth, and receives a total of forty votes, while Abel Grand is last but one, only receiving ten votes, and Princess Mary of Cambridge is "out of Court." Ferdinand de Lesseps is placed twenty-seventh in the election, Sir Garnet Wolseley forty-eighth, and Exposition de Brie sixty-ninth, receiving respectively forty, twenty-five, and fourteen votes each. Reynolds Hole stands twenty-fifth on the list and has forty-two votes accorded to it, while Sultan of Zanzibar is not mentioned. These figures must show, I think, that the majority of the electors consider them distinct.—J. W. MOORMAN.



HARDY FRUIT GARDEN.

ANY vacancies amongst bush, pyramid, or espalier trees should be filled as soon as the trees are in a fit condition to move, the ground being previously prepared for their reception. Under ordinary circumstances it will suffice to remove the worst of the old soil and supply some fresh turfy loam, trenching the border to a depth of

2 feet deep, incorporating the fresh loam with the old soil as the work proceeds. Light soils will be improved by an admixture of clayey marl, and heavy soil may have an admixture of about a tenth of old mortar rubbish. Where it is intended to form plantations of young fruit trees to be grown as bushes, standards, or otherwise, the ground should be prepared by draining and trenching, not employing any manure unless the soil be light and poor, when an admixture of well-pulverised clay and well-decayed manure may be applied. Planting should be done as soon as the leaves have fallen, and by having all in readiness for planting the work can be done as soon as the trees come to hand, spreading out the roots carefully, and only making the soil moderately firm about the roots, as it is best for it to settle down gradually after the first good rain. When moderately dry the soil should be trodden firmly around the stems, applying a mulching of partially decayed manure as far as the roots extend. Some reliable varieties for bush, pyramid, or espaliers are the following:—*Apples for Dessert*.—Mr. Gladstone, White Joanneting, Irish Peach, Devonshire Quarrenden, Kerry Pippin, Cobham, King of the Pippins, Cox's Orange Pippin, Court of Wick, Margil, Kedleston Pippin, Braddick's Nonpareil, Cockle Pippin, Reinette du Canada, Scarlet Nonpareil, and Sturmer Pippin. *Kitchen Apples*.—Carlisle Codlin, Keswick Codlin, Lord Suffield, Stirling Castle, Jolly Beggar, Cox's Pomona, Cellini, Ecklinville Seedling, Small's Admirable, Warner's King, Betty Geeson, Alfriston, Dumelow's Seedling, and Norfolk Bearer. *Pears*.—Doyenné d'Été, Jargonelle, Williams' Bon Chrétien, Pit-maston Duchess, White Doyenné, Louise Bonne of Jersey, Comte de Lamy, Marie Louise d'Uccle, Seckle, Durondeau, Doyenné du Comice, Buerré Diel, Thompson's, Beurré Bachelier, and Glou Moreceau, with the late Jean de Witte and Van de Weyer Bates. *Cherries*.—Bowyer's Early Heart, Empress Eugénie, Black Eagle, May Duke, Buttner's Black Heart, Governor Wood, Bigarreau Napoleon, and Nouvelle Royal, with Morello for culinary purposes. *Plums, Dessert*.—July Green Gage, De Montfort, Denniston Superb, Green Gage, Kirke's, Jefferson, Coe's Golden Drop, and Guthrie's Late Green. *Culinary Plums*.—Early Prolific, Czar, Sultan, Prince Englebert, Mitchelson's Victoria, Autumn Compôte, and Belle de Septembre.

Standards for Orchards.—*Apples*.—Beauty of Kent, Alexander, Large Cockpit, Keswick Codlin, Manx Codlin, Peasgood's Nonsuch, Nelson Codlin, Lady Henniker, Bedfordshire Foundling, Dumelow's Seedling, Alfriston, Golden Noble, New Hawthornden, Tower of Glamis, Galloway Pippin, Northern Greening, Winter Majetin, and Hambledon Deux Ans, with Yorkshire Greening for sauce and Nonsuch for jelly. *For Dessert*.—Irish Peach, Worcester Pearmain, Court of Wick, Adams' Pearmain, Dutch Mignonne, Reinette du Canada, Herefordshire Pearmain, Court Pendu Plat, Royal Russet, Golden Russet, Lord Burghley, and Sturmer Pippin. *Pears*.—St. Swithin's, Crawford, Williams' Bon Chrétien, Jargonelle, Eyewood, Autumn Nelis, Beurré de Capiaumont, Seckle, Swan's Egg, White Doyenné, Hesse, Louise Bonne of Jersey, Comte de Lamy, Aston Town, Doyenné du Comice, Hacon's Incomparable, Autumn Bergamot, and Red Doyenné, with Catillac for stewing. *Plums*.—Early Prolific, The Czar, Sultan, Mitchelson's, Bryanston Green Gage, Diamond, Kirke's, Oullins Early, Jefferson, Winesour, Belle de Septembre, Wyedale, Prune Damson, and Farleigh or Crittenden Prolific Damson. *Cherries*.—Black Eagle, Governor Wood, May Duke, Early Rivers, Kentish, and Morello. *Medlars*.—Dutch and Nottingham. *Nuts*.—Cosford, Dwarf Prolific, Lambert's Filbert or Kentish Cob, Red Filbert, and White Filbert. Black Mulberry is the best; and of Crabs, Siberian, Transparent, Scarlet, and Imperial.

Gathering Apples and Pears should now be completed as soon as possible, except such of the late varieties that do not part readily from the trees, and which, if gathered before they are ripe, are certain to shrivel and be spoiled. The late Pears and long-keeping Apples are also very often deteriorated by keeping them too dry and warm. They should be placed in a cellar or similar slightly damp position with an equable temperature of a few degrees above 32°. All Apples and Pears which have been gathered some time should be occasionally examined, all decayed fruits being removed. The fruit-room will need top ventilation as a means of regulating the temperature of the room, which should at present be kept as cool as possible.

FRUIT HOUSES.

Vines.—The earliest Vines in pots may now be gently started, and if a slight bottom heat can be afforded it will be an advantage. The pots should be raised on pillars of brickwork, the fermenting material employed consisting of three parts leaves to one of stable litter thoroughly incorporated and placed about the pots, but until the Vines are growing the temperature at the roots should not exceed 70° to 75°. Copious supplies of water at 70° to 75° will be necessary if the soil has been allowed to become dry. The temperature at first should not exceed 55°, but it may be gradually increased to 60° by artificial means at night, 5° more by day, and 70° to 75° from sun heat. The canes should be hung in a horizontal position to cause the eyes to break evenly throughout their length, and should be damped with tepid water two or three times a day. Cover the outside borders of late houses with wooden shutters, tarpauling, or a thick thatch of straw or bracken sloped so as to carry off the water quickly. The inside borders may be covered with mats or a thin layer of straw, which will to some extent prevent the soil cracking. Examine the Grapes frequently, removing decayed berries, but if well ripened and the roof is watertight, very little trouble will be given in this respect as regards the thick-skinned varieties, but Hamburgs will need almost daily attention. The houses should be kept as cool and airy as possible, employing fire heat only to maintain a temperature of about 45°; and by day, when the outside air is dry with abundant ventilation to expel damp, keep the ventilators closed against all damp. Provide a stock of loam for making and replenishing Vine borders. The turf of a pasture taken off about 3 inches thick where the soil is of medium texture, inclined to be light rather than heavy, is snitable.

Cucumbers.—The plants for fruiting in winter should be placed out at once on raised hillocks or ridges. Those not having the convenience of a Cucumber house may utilise the roof of a Pine stove or other sufficiently heated structure to produce a winter supply. They may be grown in pots or boxes, and the shoots trained to wires about a foot distance from the glass. Cut the autumn fruiterers regularly once a week, removing all staminate blossoms. Maintain a night temperature of 65° to 70°, and 70° to 75° by day, or with sun heat from 80° to 85°, admitting a little air at the top of the house at every favourable opportunity. Discontinue syringing the plants, damping the paths in the morning and early afternoon of fine days, and keep the evaporation troughs filled with liquid manure. Reduce the supply of moisture at the roots, but do not permit flagging. Attend well to earthing up the roots with turfy loam previously warmed.

Melons.—To have late Melons plenty of heat must be at command. Little atmospheric moisture will be required by those well advanced for ripening, and supply water at the roots sparingly, removing all superfluous laterals, and well thin out the old foliage that the fruits may have the full benefit of the sun. Plants with fruit swelling still require the floors lightly damped in the morning and early afternoon, applying water at the roots moderately. Maintain the temperature at 70° at night, 75° by day, and 80° to 85° through the day from sun, giving a little air at every favourable opportunity.

FLOWER GARDEN.

Some of the ornamental-foliaged plants employed for the decoration of the flower garden in summer are valuable for decorating large conservatories, halls, and corridors, and if lifted before they are damaged by frost they will be serviceable for a long time. Some of the choicest Aralias, Abutilons, Cannas, Chilian Beet, Melianthus, Solanums, Wigandias, &c., lifted carefully, placed in a moist house, and kept well syringed, will soon become established. As soon as the weather necessitates a clearance of the beds attention should be given to refilling them either with dwarf shrubs or spring-flowering plants and bulbs, or a combination of both, so as to impart a cheering aspect during the dull months with something fresh and attractive. Some of the most effective shrubs are *Andromeda floribunda*, *Skimmia japonica*, *Aucuba japonica mascula*, *A. vera nana*, *A. limbata*, *A. longifolia*, small plants of *Cupressus Lawsoniana* and its many vars., *C. nutkaensis*, *Cryptomeria elegans*, *Euonymus japonicus* vars. both gold and silver-variegated, *E. latifolius aureo-marginatus*, *E. radicans variegatus*, *Osmanthus ilicifolius* and vars. *aureus* and *variegatus*

nanus, *Thuja aurea*, *Taxus baccata aurea*, *T. elegantissima*, the Myrtle-leaved Portugal Laurel, *Laurustinus*, *Kalmia latifolia*, the Tree Ivies—*Hedera arborea aurea*, *elegantissima*, *fructo-luteo*, and *Rægneriana*; dwarf *Rhododendrons*, as *ovatum*, *myrtifolium*, *Daphnoides*, and *Wilsoni*; *Pernettya mucronata*, *Buxus japonica aurea*, *B. sempervirens aurea*, *B. suffruticosa argentea marginata*, and *Yucca recurva*. In warm situations the *Retinosporas* are beautiful, also *Thujopsis dolabrata*. Early spring-flowering plants are Winter Aconite, *Scilla siberica*, Snowdrops, Crocuses, Hyacinths, Tulips, Primroses, *Aubrietias*, Pansies, Violas, Daisies, Forget-me-nots, *Nemophilas*, *Silenes*, and many others; whilst for edgings *Golden Pyrethrum*, *Golden and Variegated Thyme*, and *Stachys lanata* are suitable.

PLANT HOUSES.

Greenhouse.—There is perhaps at this season an objectionable sameness in flowering plants available for conservatory decoration, hence the value of plants flowering at this season. *Correas bicolor*, *Brilliant*, and *cardinalis* are flowering where they have been encouraged early in the season; also *Epacris*. The bright scarlet of *Rochea falcata* likewise is very telling, and the beautiful blue of *Witsenia corymbosa*, whilst in yellow *Cassia corymbosa* is very effective. Some of the Heaths are also flowering where growth was encouraged. Early good winter-flowering varieties are *Ericas grandinosa caffra*, *persoluta alba*, *colorans*, *gracilis autumnalis*, *Bowiana*, *cerinthoides*, *scabriuscula*, *perspicua erecta*, *candidissima*, *Lambertiana rosea*, *ventricosa* and vars. *hyemalis*, *melanthera*, *mammosa pallida*. *Crowea elliptica*, *C. latifolia*, *C. stricta*, and *C. saligna* are fine in late summer and autumn, their star-shaped pink flowers being very pretty, flowering at this season for several weeks in a temperature slightly warmer than an ordinary greenhouse. *Cytisus racemosus* and elegans started early will come into flower readily if in a temperature a few degrees higher than an ordinary greenhouse. Camellias have now been placed in their winter quarters. The present is a good time to clean the foliage, sponging both sides of the leaves, also the stems, being careful not to injure the buds.



QUEEN-INTRODUCTION.

As an instance of the eccentricities of bees in accepting and declining queens possibly the following case may not be without interest, especially if an editorial note will give the reason why.

A fine Ligurian queen in full lay was introduced into a colony of blacks, which had contained a fine black queen, also laying briskly. The Ligurian was caged on a frame of brood in a pipe-cover cage, which (as Mr. Grace's new Guide states) appears the best cage for the purpose, as it compels inspection when releasing. At the end of twenty-four hours the new queen was examined, but as she was balled she had to undergo another twenty-four hours' captivity. Again she was balled. This time they were so persistent that it was deemed advisable to drop the lump of bees into a cup of water. This was advised by a very able and experienced bee-keeper. When the queen was disengaged and caught she was, alas! to all appearance lifeless and insensible to the warmth of the hand. So she remained for half an hour, and so she would have remained altogether but for timely succour—feminine of course.

"O woman! in our hour of ease
Uncertain, coy, and hard to please;
When pain and anguish wring the brow
A ministering angel thou."

And this ministering angel administered comfort by carrying the limp and inanimate body of the queen into the house, wrapping it in flannel and placing it before the fire. The evening was chilly, though only the end of July. Whether any restoratives in the shape of "pick-me-ups" were administered I cannot say; but this I do know, that to everyone's amazement next morning the bee was as lively as a cricket. After this extraordinary escape she was introduced into another black hive previously deprived, where it was hoped the bees would be more grateful and treat her with the appreciation she deserved; but after two more ballings she was found dead. Why, was always a mystery. In a week

afterwards they had accepted a new imported Ligurian queen. Why?—Buzz.

[The case is by no means a rare one, and may be thus explained. The strange queen was in the first case caged in the hive before the bees had become aware of their loss, and was thus exposed to a hostile attack. The odour of ejected poison would then remain about the queen and cage, and serve to continue the hostility. Had the repeated caging been persevered in, and care taken that the queen could not starve, which she seems almost to have done, success would have probably crowned your efforts within a day or two. As such cases are rather frequent it is common to allow the bees to manifest their sense of the loss of a queen before caging a stranger. In the second case the odour of the poison remaining on the queen served to intensify the hatred that was probably developed in the same way as at first. By the time the imported Ligurian was introduced the bees had become fully aware of their loss, and were thus prepared to accept a stranger without much ceremony.]

POISONOUS HONEY.

[Translated from the "*Bienenzeitung*." Communicated by Mr. Alfred Neighbour.]

In No. 10 of the *Bienenzeitung* for 1880 Professor Dr. Münter of Greifswald declared that the question as to the poisonous character of certain kinds of honey was still an open one, which required further investigation. It may therefore interest your readers to know that I am able at least to vouch for the correctness of the assertion that some kinds of honey are poisonous, several cases of poisoning having come to my own knowledge. I especially remember one case where a considerable number of powerful young men had partaken of some honey from a nest of wild bees, in consequence of which all became ill. Those who had eaten but little of it because they did not like the honey only suffered from sickness, vomiting, stomach-ache, and diarrhoea; others who had partaken more freely were attacked with giddiness and pressure of the blood to the head, and other serious symptoms showed themselves. My informant in this case is my friend Mr. Emil Odebrecht, an engineer, who became seriously alarmed at the state of several of his men, who were in the interior of a primeval forest beyond the reach of medical assistance. Unfortunately I have not been able to ascertain with certainty what bees the honey had been taken from, but from the accounts I received I am inclined to think that it had come from the Trigona, called Cagafogo here. Knowing how fond the Cagafogos are of carrion and other nasty substances, I always had such an aversion to their honey that I never could persuade myself to taste it.*

Blumenau, Sta. Catharina, Brazil, 20th July, 1880.

(Signed) FRITZ MÜLLER.

THE CAGAFOGO BEE.

Of our numerous honey bees without stings (Melipona and Trigona) I have never seen any visiting carrion except the Cagafogos. In the highlands of Curitiba I noticed on some pieces of fresh beef, which had been salted and hung up to dry, a few other species of Trigona and Melipona, as well as *Apis mellifica*, which has become wild there, but whether the brine attracted them or the meat I am unable to say. The juice of putrifying meat probably serves as food for the Cagafogos: altogether their peculiar taste distinguishes them from all other bees in this country. I am doubtful whether they collect honey from flowers at all, or whether they visit them for the sake of their pollen only. They are rarely to be seen on flowers, and then usually on those that emit a bad odour, which flowers are generally avoided by other bees. They are also found on offensive-smelling hairs of leaves, stalks, or calyces of different plants, on parts of trees where the bark has been removed, on newly cut sugarcane, or they may be seen occupied with their milk-cows, the larvæ of membracines. The food of the other species of Melipona and Trigona of this country consists almost exclusively of honey gathered from flowers in addition to pollen. One species only, the *Arapua* (Trigona ruficus), is in the habit of gnawing trees in order to obtain the juice which escapes, and it also frequently destroys the green young shoots of Orange trees. The different species of bees seem to have a preference for different flowers, the probable cause of which may be found partly in the difference in length of their tongues, and partly in their preferring a certain odour or taste of the honey. The pretty little Jaty (Trigona Jaty), whose honey is highly esteemed here, is most particular in its choice of flowers. It visits hardly any but the choicest sweet-scented flowers, such as Roses, Orange blossoms, &c. *Apis mellifica* is less particular in this respect than any of our native

* It is well known that at times Melipona honey when collected from certain plants is poisonous, especially that gathered from the Muntubinha, being of a green colour, is said to cause violent diarrhoea. The best honey in Brazil, we understand, is to be obtained from Melipona pallida (the Mancuba). We were not aware that some—perhaps all—species of Trigona visit carrion. It would be interesting to know the reason why the Trigona is fond of carrion. We presume they visit it in order to obtain water if they are unable to find it elsewhere. Even our honey bee does not despise manure water, &c. We should be very much obliged for any information Mr. Fritz Müller could give us on this subject.—(Signed) THE EDITOR.—(From the "*Bienenzeitung*," No. 4, 15th February, 1881.)

bees. It gathers almost any honey that is accessible, which, by the way, does not say much for its highly developed sense of smell, which Wolff ascribes to it.

To return once more to the Cagafogos. As they prefer odours which disgust us they themselves possess a most offensive smell. They are the only kind of our domesticated honey bees which, though not possessed of a sting fit for use, yet prepare a poison for their defence. Not only near their nests, but also where they congregate in large numbers, as on carrion, on parts of trees where the bark has been removed, on membracine larvæ, &c., they rush against the face of any person who disturbs them and discharge a drop of acrid poison which stings like fire (hence their name), and reddens or even blisters tender parts of the skin.†

Blumenau, Santa Catharina, Brazil, 14th July, 1881.

(Signed) FRITZ MÜLLER.

CONTRACTED HIVES FOR WINTER.

In reply to Mr. Pettigrew's request for results on the subject of contracted hives during winter, in my case it appears to suit the bees best to crowd them on to as few frames as they can be got. That it is good for and healthful to the bees I infer from the fact that few are dead in the spring—perhaps six to a dozen in each hive; and that it is good for the bee-keeper is proved by the small quantity comparatively of food that is consumed. The "why" in this case also I leave to the scientist to be fully explained.—Buzz.

BEE SHOWS.

DURING the last ten years considerable exertions have been made to popularise bee-keeping by having bee and honey exhibitions. Societies and associations have been formed and maintained for the purpose of encouraging cottagers to keep a few hives of bees in their gardens, and by this means add to the comforts of life. Many members of these associations have laboured with commendable industry and singleness of eye to help the working community in the pleasant and self-rewarding occupation of bee-keeping. Great efforts have been made, and yet much remains to be done. It is rather a difficult matter to spread knowledge and excite enthusiasm on the subject of bee-keeping. How it can be best done is a question for the consideration of our apian associations.

The first question I would like to suggest is this, Have bee and honey exhibitions been successful and satisfactory? Is there room for improvement? It will be readily admitted that all exhibitions meant to be popular should be attractive and as novel as possible—that stiff monotony should be avoided. The desire of novelty in the human mind should not be forgotten in writing out schedules of prizes, and in making preparations for bee and honey shows. Admiration for the beautiful and the wonderful are also common among men. People desire to see what is new, beautiful, and wonderful. Wherever these can be found people go. What was witnessed at the Manchester Exhibition confirms the belief that bee and honey shows will yet become popular institutions in Great Britain. The novelties of the bee tent at Manchester caused great excitement and delight, and doubtless in the event of another bee and honey show being held there it would be visited by crowds of people.

I am not going to point out defects in or find fault with other exhibitions. It is always an easy matter to find fault. I think that improvement is likely to come from the introduction of variety and novelty of exhibits rather than from an abundance of them. Many visitors in the front tents of the Manchester Exhibition were oppressed with the abundance and grandeur of the Exhibition. One clergyman said to me that the magnificence of the Show was too much for the mind to grasp and realise. One gentleman said that if the bee tent had twice its number of exhibits it could not be more gratifying and satisfactory. More variety and novelty would have made it more gratifying and sensational. And this is what I would like our apian associations to aim at in future exhibitions. With comb foundations in use no limit can be put to the possibilities of variety of exhibits in honeycomb. In addition to supers in glass, wood, and straw, we shall have crowns and crosses, stars and icicles, legends and mottoes, done in honeycomb. Bee-keeping will be popularised and become a source of profit to one class of the people, and a source of pleasure to another class.

† The following is an extract from the letter of 14th July accompanying the above article—"Please excuse the delay in replying to your request in No. 4 of the *Bienenzeitung*. I send you to-day the meagre information I possess of our Cagafogos. I have not been fortunate with these bees, none of the colonies which I brought home from the forest remaining alive for any length of time. Indeed it would have been more difficult to observe the doings of these irritable and offensive bees than those of other more peaceful bees."—(Signed) THE EDITOR.—(From the "*Bienenzeitung*," No. 19, dated 1st Oct., 1881.)

If our friends of the Bee-keepers' Association will not be offended I will state my fears, or rather opinions, about their bee tent. It has been a question with me whether it does more good than harm. At bee shows it is used to give object lessons to show visitors how bees and combs can be handled and changed from one hive to another, and for other purposes or manipulations. I have often said that such object lessons are useful. They teach by example, and encourage some young bee-keepers to practise what they read about. There is another view to be taken of the bee tent and the manipulations therein practised. Does the manipulation tend to encourage ladies and gentlemen to keep bees, or does it frighten them from the very idea of ever handling bees? I once asked a gentleman who had witnessed the wonderful operations of the manipulating tent what were his opinions as to the tendency or effects of the operations on the minds of spectators. He said, "I think it tends to frighten people from keeping bees." In the manipulations of bees in the tent there must unavoidably be a great sacrifice of lives; but probably the ultimate aim and end of the bee tent is the introduction of a better hive to the bee-keepers of England. Whether the effort put forth will end in success and when, are questions that cannot be answered at present. Meanwhile let us endeavour to interest the public by attractive exhibitions and large harvests of honey.—A. PETTIGREW, *Bowdon*.

TRADE CATALOGUES RECEIVED.

Wm. Wood & Son, Uckfield, Sussex.—*Catalogue of Fruits*.
Charles Turner, Slough.—*Catalogue of Roses and Fruit Trees*.
Thos. S. Ware, Tottenham.—*Catalogue of Trees, Shrubs, Roses, and Hardy Florists' Flowers*.
Bruant, Poitiers, Vienne, France.—*Catalogue of Fruit Trees and Roses*.
H. Merryweather, Southwell.—*Catalogue of Roses*.



Rochea falcata (A. Boyle).—The leaves should remain on the surface of the soil until they callus and then be inserted; if inserted when removed from the plants they are very liable to decay.

Bitter Almond (F. R.).—Your question was referred to page 323, the issue of October 6th, under "Names of Fruits." The Almonds are used occasionally for flavouring, but Sweet Almonds are much preferable. We do not remember having received any other question from you. All questions that are submitted to us have our best attention. We thank you for your letter, the other portion of which is referred to in another column. You have infringed no rules, and we shall always be glad to hear from you whether you ask questions or communicate information.

Tropæolum speciosum (Reading Correspondent).—We are unable to inform you where you can purchase plants of this Tropæolum. Those who have them for disposal should advertise them. If plants established in pots were offered they would no doubt meet with a ready sale, as many people are anxious to establish this brilliant hardy climber in their gardens.

Natural Orders of Plants (W. E. B.).—Reidia is included in the natural order Euphorbiaceæ, Stephanotis in Asclepiadaceæ, Bougainvillea in Nyctaginæ, Franciscea in Scrophulariaceæ, Palisota in Commelinaceæ, and Stenogaster in Cyrtandraceæ. The loss or change of colour in drying flowers cannot be remedied in the majority of cases. The best plan is to dry the specimens as quickly as possible. Some advocate immersing them in hot water previous to drying.

Stephanotis Fruiting (Willow).—We have seen many instances of Stephanotis producing fruit, and therefore yours is not a unique case. If the fruit is in a light position near the glass it will probably ripen the seeds; and if you desire to raise young plants the seeds must be sown in very light sandy soil, the pans or pots being plunged in a hotbed. We do not know of any special useful qualities that the fruit possesses.

Apple Tree not Bearing (Market Gardener).—The name of your Apple is purely local. As the tree is covered with blossom annually and yet seldom bears fruit we cannot suggest any better mode than protecting the blossoms from frost, and as you say the tree is trained to a wall protection can be easily afforded. There is no list of market gardeners published, and your name cannot be included amongst nurserymen until you are established in the business. The "Horticultural Directory" will be announced when ready.

Planting Marechal Niel Rose (D. D.).—In all probability the Rose would succeed better planted in good soil in the outside border as you propose than grown in a pot. If you procure a strong plant from the open ground we should plant it at once in deep rich loam, and cover the surface over the roots and for a foot beyond their extremities with good manure. If you have a plant in a pot you may defer planting until the spring. This Rose will succeed in a particularly shaded position, but it cannot be expected to flourish if it is overhung with trees.

Large Apples (B. T. W.).—Warner's King and Gloria Mundi are two of the largest. At the Hereford Show held last year the first-prize five fruits of the former weighed 7 lbs. 3 ozs.; second, 5 lbs. 7½ ozs.; and third, 4 lbs. 12¾ ozs. In 1879 Gloria Mundi secured the first prize, the five fruits weighing 5 lbs. 10¼ ozs. Warner's King is the most useful of the very large late Apples, the tree being a

good grower and excellent bearer. At Maidstone last year Loddington measured 14½ inches in circumference. Ribston Pippin is richer in flavour than Cox's Orange Pippin, but the latter is excellent, a very free bearer, and on the whole more reliable, as being less liable to canker.

Heating Cucumber House and Early Vinery (Tolmesian).—In the Cucumber house with the pipes under the bed on each side of the walk in a hollow chamber you will practically have no top heat, so that in addition to those under the beds you will require a similar quantity of piping along the sides of the house immediately above the beds of compost, or they may be placed along the sides of the beds next the pathway. There is no necessity to afford bottom heat to Rhubarb being forced; and the pipes for heating the vinery must be fully exposed, or they will be insufficient for maintaining the needful temperature for the Vines. A 30-inch saddle boiler will heat about 400 feet of 4-inch piping.

Forcing Lilacs for Flowering at Christmas (An Inquirer).—It is not necessary to grow or bring the plants into flower in a Mushroom house or other dark place. We lift the common white Lilacs, placing them in large pots or tubs at the close of November, and place them in a house with a temperature of 60° to 65° at night and 70° to 75° by day from sun heat, and the plants come into flower at Christmas. All that is required is to damp them overhead occasionally, and to keep them duly supplied with water. The plants need to be in the temperature above named five weeks before they are required in flower. The common Lilac forced in the above manner also affords white flowers by Christmas and the new year, the flowers not assuming their full lilac tints until the spring is somewhat advanced. There is no difficulty in having white Lilac at Christmas, only employ plants well set with buds, and give them a temperature as above indicated. They will succeed in less, but more time will be required to bring them into flower.

Pruning Stephanotis (W. H. W.).—It is not advisable to prune a Stephanotis severely, and "cutting back" often results in a great loss of flowers, and certainly of early flowers. Even thinning out the growths should be done judiciously, as cutting out a great number at once at this season of the year is more or less injurious to the plant. Thinning-out should be done earlier, when the plant is in free growth, with the object of disposing of the growths thinly, so that the foliage is exposed to the light. Under this treatment the wood is matured, and flowers are produced freely and early the following spring. The little confusion that has occurred was probably the result of matter pertaining to two distinct departments—business and editorial—being included in the same envelope. To prevent mistakes all business letters should be addressed to the publisher, and editorial communications to the editor. Your wishes in future shall be complied with.

Horse Chestnuts (A. G. S.).—This mishap to which you refer is only, we think, a coincidence having occurred when the nuts abound. We should not destroy the trees, as we have no evidence that the fruit is injurious; on the contrary, in Turkey the nuts are ground and mixed with the provender of their horses, especially of those which are troubled with coughs or are broken-winded. The nuts are well adapted for feeding deer and swine, upon which the latter are found to fatten freely. But, before they can be rendered serviceable for this purpose they must be steeped for two or three days in water to extract their bitterness. In Switzerland they are crushed as food for sheep, and given in meals of 2 lbs. to each sheep, morning and evening. They are said not only to fatten the animals, but to communicate a peculiarly fine flavour to the mutton. The nuts abound in starch, which may be readily obtained in a state of purity, and it is said to excel as an article of diet that procured from the Potato; and the bitter principle which they contain may be effectually removed by macerating them in an alkaline solution. The powdered kernel snuffed up the nostrils causes sneezing, and has been used successfully in diseases of the head and eyes.

Fruit Trees for Walls and Orchard in North Yorkshire (A Yorkshire Rector).—For walls with a south aspect Apricots succeed, the best being Oullins Early Peach, Moorpark St. Ambrose, and Kaisha. Plums succeed admirably, the best being July Green Gage, Bryanston Green Gage, Jefferson, Kirke's, and Coe's Golden Drop. Peaches and Nectarines succeed fairly well with protection. Of Peaches Early Beatrice, Hale's Early, Dr. Hogg, Grosse Mignonne, Noblesse, Diamond, and Barrington; of Nectarines Lord Napier, Rivers' Early Orange, Hardwick Seedling, and Pine Apple. East walls suit Plums, and in addition to those named as suitable for a south wall Deniston's Superb, Transparent Gage, Gathrie's Late Green, Ickworth Impératrice, Prince of Wales, Victoria, Belle de Septembre, and White Magnum Bonum; also Cherries, Belle d'Orléans, Empress Eugénie, May Duke, Elton, and Governor Wood. West, also east, walls suit Pears, Jargonelle, Beurré d'Amanlis, Beurré Superfin, Louise Bonne of Jersey, Marie Louise d'Uccle, Durondeau, Maréchal de Cour, Marie Louise, Beurré Diel, Thompson's, Van Mons Leon Leclerc, Beurré Bachelier, Glon Morceau, Winter Nelis, Josephine de Malines, and Bergamotte Espéren. North walls are most profitably covered with Morello Cherries. For orchards—Apples—Irish Peach, Kerry Pippin, King of the Pippins, Claygate Pearmain, Dutch Mignonne, Reinette du Canada, Peasgood's Nonsuch, Cockle Pippin, and Sturmer Pippin; and for cooking, Carlisle Codlin, Keswick Codlin, Alexander, Cellini, Small's Admirable, Blenheim Orange, Warner's King, Duncow's Seedling, Bedfordshire Foundling, Northern Greening, and Hambleton Deux Ans. Pears—St. Swithin's, Williams' Bon Chrétien, White Doyenné, Beurré de Capiaumont, Aston Town, and Swan's Egg. Plums—Early Prolific, The Czar, Prince Englebert, Diamond, Winesour, and Wyedale.

Names of Fruit (J. M. D.).—Nearly all the Grapes were broken in transit. We can only say that the large one resembles the Golden Champion, and the small one Royal Muscadine. We do not undertake to name Grapes unless a bunch arrives in good condition and with a lateral bearing good foliage. No one can name Grapes with accuracy from a few isolated berries. (J. Woodliffe).—Pear, Beurré Hardy. Apple, 1, Sops-in-wine; 2, not known. (Northampton).—Your seedling Apple is handsome, but it does not possess any merit even for cooking, as it has not sufficient acidity: the fruit also is very light. The other is Hollandbury. (J. M. M., North Devon).—Your fruit shall be carefully examined and referred to next week. (G. S.).—2, Waltham Abbey Seedling; 3, Suffolk Thorn; 4, Cox's Orange Pippin; 5, Golden Winter Pearmain; 6, Court Pendu Plat; 7, Cox's Orange Pippin. (T. Norbury).—1, Beurré Diel; 2, Nouveau Poiteau; 3, Beurré d'Anjou; 4, Beurré de Capiaumont; 5, De Bay; 6, Easter Beurré. (John Dowden).—You have not sent any numbers with your fruits, and we cannot refer to them individually. (Carnagh).—The fee for naming fruit for non-subscribers is 5s. (G. O. S.).—Selwood's Reinette. (T. R.).—3, Warner's King; 4, not known; 5, Scarlet Nonpareil; 6, and another like it, Striped Holland Pippin. Large Yellow Apple, Bedfordshire Foundling. The labels were not secure, and some of them were shaken off in transit. (G. B. C.).—Apples—5, Herefordshire Pearmain; 6, Fearn's Pippin. Pears—3, Gansel's Late Bergamot; 2, Beurré Capiaumont; 1, Susette de Bay; 4, not known. The scale is Aspidiotus conchiformis, and may be destroyed by dressing with a solution of soft soap and paraffin, as advised on page 277. (R. P. Williams).—

Apples—1, Stamford Pippin; 2, Court Pendu Plat. Pears—1, not known, and quite worthless; 2, Red Doyenné, small. (J. W.).—Beauty of Kent. (W. H. Bunnister).—Huyshé's Prince of Wales.

Names of Plants (M. H. R.).—1, *Crataegus eococinea*. 2, Specimen quite withered, but resembling *Rudbeckia fulgida*. (G. P.).—1, *Nephrolepis tuberosa*, which may be increased by placing the tubers in similar soil and temperature to those provided for the plants; 2, *Saxifraga ceratophylla*; 3, not sufficient for identification; 5, *Selaginella Martensii*; 6, *Saxifraga hypnoides*. (A. A. M.).—The yellow flower is *Chrysanthemum frutescens* Etoile d'Or, the other is *Sericographis Ghiesbreghtiana*. (R. O. D.).—1, *Lonicera sempervirens*; 2, A variety of *Lantana*, but the fragment was insufficient for determination; 3, *Euphorbia splendens*; 4, *Habrothamnus fasciculatus*; 5, *Amaranthus caudatus*; 6, Apparently a weak shoot of *Kalosantes eococinea*.

Bees not Sealing Syrup Given as Food (H. M.).—Store can no more be sealed without the secretion and elaboration of wax than can comb be built. A high temperature is needful for this secretion, and hence in the chilly weather we always get at the very close of the season bees are disinclined to seal the syrup they receive as food. In very strong stocks, in hives contracted until the bees are crowded, comb-building and sealing may be carried on with adverse external conditions; but as a rule all feeding should be completed in time to secure the sealing of the greater portion. Bees never seal quite all their store; that set apart for present use is left unsealed, and in the depth of winter they always in the midst of the cluster retain a certain limited supply of open honey. That the syrup is unsealed in large amount is unfavourable for wintering and may be a cause of failure, but thick-walled hives well contracted will make up often for disadvantages of this nature.

COVENT GARDEN MARKET.—OCTOBER 19.

TRADE steady. Prices, with the exception of Apples, generally better.

FRUIT.							
	s. d.	s. d.		s. d.	s. d.		s. d.
Apples.....	1 sieve	1 0 to 4 6	Lemons.....	per case	18 0 to 30 0		
Apricots.....	doz.	0 0 0 0	Melons.....	each	1 0 2 0		
Cherries.....	per lb.	0 0 0 0	Nectarines.....	dozen	0 0 0 0		
Chestnuts.....	bushel	16 0 0 0	Oranges.....	per 100	0 0 0 0		
Currants, Black..	1 sieve	0 0 0 0	Peaches.....	dozen	6 0 15 0		
" Red.....	1 sieve	0 0 0 0	Pears, kitchen..	dozen	1 0 1 6		
Figs.....	dozen	0 6 1 6	" dessert.....	dozen	1 0 2 0		
Filberts.....	per lb.	0 0 0 9	Pine Apples....	per lb.	3 0 5 0		
Cobs.....	per lb.	0 0 0 9	Strawberries....	per lb.	0 0 0 0		
Gooseberries....	1 sieve	0 0 0 0	Walnuts.....	bushel	7 0 8 0		
Grapes.....	per lb.	0 6 4 0					

VEGETABLES.							
	s. d.	s. d.		s. d.	s. d.		s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6		
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	punnet	0 2 0 6		
Beans, Kidney....	per lb.	0 3 0 6	Onions.....	bushel	3 6 5 6		
Beet, Red.....	dozen	1 0 2 0	" pickling.....	quart	0 0 0 5		
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0		
Brussels Sprouts..	1 sieve	3 0 3 6	Parsnips.....	dozen	1 0 2 0		
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushel	2 6 4 0		
Carrots.....	bunch	0 4 0 6	" Kidney.....	bushel	3 0 4 6		
Capstems.....	per 100	1 6 2 0	Radishes.....	doz. bunches	1 6 2 0		
Cauliflowers.....	dozen	0 0 3 6	Rhubarb.....	bundle	0 4 0 6		
Celery.....	bundle	1 6 2 0	Salsafy.....	bundle	1 0 0 0		
Coleworts.....	doz. bunches	2 0 4 0	Scorzoneria.....	bundle	1 6 0 0		
Cucumbers.....	each	0 4 0 6	Seakale.....	basket	2 0 2 3		
Endive.....	dozen	1 0 2 0	Shallots.....	per lb.	0 3 0 0		
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 0		
Garlic.....	per lb.	0 6 0 0	Tomatoes.....	per lb.	0 8 0 9		
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0		
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 1		



POULTRY AND PIGEON CHRONICLE.

IMPROVEMENT OF THE HAMPSHIRE AND WEST COUNTRY DOWN SHEEP.

IN concluding our observations upon the subject of "Cross-breeding of Sheep" in this Journal on the 2nd of September, 1880, we alluded incidentally to the means at our disposal for the improvement of the Hampshire and West-country Down sheep, but intending on a future occasion to return to the subject, and by stating in detail the manner in which we would proceed to work out so desirable an object based upon our experience as we'll as that of other flock-masters; we therefore now return to the consideration of the subject *in extenso*.

Within the last few years a strong opinion has prevailed that the breeding flocks of this kind of sheep are becoming deteriorated, notwithstanding the efforts to maintain the style and character. We are by no means surprised that such is the case, for as a rule Nature never stands still, and that those flocks which are not

improving in quality and value are therefore receding. This is a matter not to be lightly spoken of, particularly when we find really practical and intelligent men of great experience are amongst those who complain. It is, in fact, our only object in introducing the subject, in order that an improved type and style of sheep may be established and made available, not only for improving and renovating the present race, but also for maintaining the most approved character of the Hampshire and West-country Downs. Deterioration in the future is sure to happen unless the most practical and experienced breeders and flock-masters take up the matter in earnest, and bring out an improved type of animal adapted for rearing upon the exposed hill farms of the south-western and southern counties. It is well known that certain breeders are perfectly satisfied with their present flocks, and say that they are unrivalled. If we were to admit this we certainly could not go so far as to say that they cannot be improved. Let us now consider what are the points and character of these sheep which should be retained and those which may be improved upon.

In looking back for forty years and upwards we find that at various periods alterations of the style and character of these sheep were effected by experienced breeders, but that they had no object in common in introducing their changes or modifications. Mr. J. T. Twynam of Winchester, a Hampshire farmer who is still living, about the year 1830 used the improved Cotswold ram with his Hampshire Down ewes, and this cross had the effect of increasing the number of lambs, adding to the weight of the carcase, and yielding more wool, with a greater disposition to fatten, which at that time were considered valuable improvements. The flock-masters who possessed at the succeeding period the best style and type of sheep to be obtained at that time were Mr. F. Budd, of Hatch Warren, Hants; Mr. Thos. Saunders, of Watercombe; and Mr. John Fookes, of Cerne, in Dorset. The character of the sheep bred by these gentlemen was what we may term the most approved type of the period—namely, a large size with short wool, of great length, breadth, and depth of carcase; and although not early in lambing they were well suited for their districts, and were very hardy, and adapted for the consuming of root crops in exposed positions in rough and bad weather. The next improver of these sheep was Mr. Wm. Humphrey of Oak Ash, Chaddleworth, Berks, whose sheep were certainly the best style and character we have seen as the representative of the West-country Down, for we noticed the great success of his flock in taking the best prizes at the meetings of the Royal Agricultural Society of England at their meetings held at Salisbury, Chester, and Warwick in the years 1857–58–59, and again at the Battersea International Meeting held in 1862. On each of these occasions the sheep were considered by the Judges to be superior to all other short-woolled sheep, especially on the points of early maturity or weight for age, quality of mutton, and wool of fine and short staple. These animals having been obtained by the use of South Down rams of Mr. Jonas Webb's celebrated flock with the largest and choicest Hampshire ewes, such as Mr. F. Budd's, may be considered to be an enlarged type of Sussex Downs, with all the hardihood and strength of constitution for which the Hampshires have always been famous.

To make our list of breeders complete in the west-country districts we must name Mr. James Rawlence, of Wilton, Wilts, who sagaciously observed the value of Mr. Humphrey's stock, and availed himself of the opportunity of improving the size and character of his flock. Although at the time they were enlarged specimens of the Sussex Down he obtained a valuable improvement by an alliance between his strongest and selected ewes and rams from Mr. Humphrey's, and eventually possessed a flock of west-country sheep second to none, and was often a prizewinner at the Royal and Smithfield Stock Exhibitions. The most un-

fortunate point we have to dwell upon is the loss of Mr. Humphrey's sheep; for although of so much value in their blood, and although his rams were sought for by the best flock-masters, yet not one has ever attempted to maintain this splendid breed of animals in purity, which Mr. Humphrey has told us in conversation on various occasions took him more than twenty years of careful selection to obtain. Some of the best flocks, however, owe their distinguished position at present in the show yard to the influence of the rams obtained from Mr. Humphrey.

We must now call attention of the breeders of this class of stock (Hants and West-country Down), for since this blood is now only to be obtained in a largely diluted degree through the various flocks where used, we ask the question, Which way are we to look for sheep to improve our present stocks of Hampshire Downs? Since we lost Mr. Humphrey's we have not been enabled to obtain any other type of similar value for all the varied purposes for which this breed was celebrated, but more especially for its early maturity, quality of mutton, short fine wool, and adaptation for breeding purposes upon the cold hill farms of the different districts. We cannot, however, pass over without remark the fact that Hampshire and West-country Downs are not good breeders. It is recorded in an article in the "Bath and West of England Society's Journal," contributed by Mr. E. P. Squarey, of Odstock Farm, Salisbury, on the "Hill Farming of Wiltshire and Hampshire" that as the result of a census taken on the 4th of May, for five consecutive years, in a district within a radius of ten miles of Salisbury, Wilts, the average produce of 10,600 ewes was only 89 per cent. of lambs. From the conditions under which these numbers were obtained it is believed that they fairly represent the general circumstances of the flocks of the hill districts of Wiltshire. This return, too, was given in 1861, at a time when the improvements introduced by the use of the best breeds of stock had been in full operation for a considerable period. If we look for fresh blood to renovate or maintain the value of the Hants and West-country Downs we cannot find it in the Shropshire Downs, because we should lose early maturity, as proved by the contests and exhibitions at the Royal from 1857 to 1862; we may, however, and probably should, gain a greater number of lambs. If we take the Oxford Downs we should find early maturity it is true, and obtain a better produce in number of lambs; but we should lose in the quality of the meat and get a longer staple in the wool, which is not calculated to improve a short-woolled breed, nor should we consider them so hardy for feeding on the cold chalk hills like Hampshire Downs. As we are now alluding to breeding flocks, yet we do not deny that the cross of the Oxford Down with off-going ewes has frequently proved satisfactory on account of the increase of lambs as compared with Hampshires. As we have now occupied the attention of our readers by lengthy statements of the attributes and advantages, as well as the disadvantages, of the Hants and Wilts Down stock, it has been only to prepare them for further statements connected with the proposed new style of sheep which we intend to bring under notice.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This will still be connected with the Wheat season. All the Clover lea ground should have been ploughed before this time; if not, the sooner it is ploughed and pressed the better. We are becoming more than ever in favour of the presser being used before seeding, especially upon lea ground. When the land is light and dry the ploughing after roots fed off or any other fallow preparation, pressing and seeding with the press drill simultaneously, is to be preferred to drilling in the ordinary. If it be carefully done the Wheat may very well be horse-hoed in the spring, as the lines would be from 10 inches to a foot apart, which is not too wide on strong land. It is of great importance, also, that on much flat land, even after it has been effectually pipe-drained, the ridges should be small—say the ten furrows or five turns with the plough—but they need not at this size be made very round or high in the centre. The chief point is to have the ridges to fit the drill as to width, and not have the land furrows struck out too deeply. Let this work be done with the Potato plough, in order that the loose earth may be thrown out equally on either side, and then the furrow if deep will be very narrow, and not hinder the effective working of the reaping and mowing machines either at harvest or hay time if driven across the ridges. Raising Potatoes should now be finished as soon as possible if the land is flat, as the lifting frame does not act well after heavy rains when the land is tough and sodden. The Mangold crop must be preserved by carting away to heap at the farmstead.

Hand Labour.—This may be applied to the storing of Mangold or Swedes, especially when either are pitted in the field. We find the best plan is to let the work on hire to a man, his wife, and family at so much an acre; they will then earn far more money and finish the work in much less time. This is important in the Mangold crop, so that they may be heaped and covered in before the frosts of November set in. Planting Cabbages may now be continued, but the sooner

it is completed the better, and for this time of year the plants ought to be strong, and if the land is stetched and the plants set in the furrows it will preserve and shelter them in the winter. In many districts when the snow is on the land game and wood pigeons are very destructive to winter plants unless covered with snow, which is quickly done when planted in the furrows between the stetches, and in the spring the stetches when split with the double mould plough earth the plants very beneficially.

Live Stock.—The young cattle now require attention—both steers and heifers—the latter especially. They, being most subject to the quarter-ill, should now be accommodated either on a very high and dry grass paddock, otherwise in sheltered littered yards and sheds at night time, and receive cotton cake or beanmeal, or both, in connection with cut roots or Cabbage. This will keep them healthy and in good condition. Some farmers we notice lately, in supplementing the grass food for dairy cows, give them brewers' grains laid in small heaps on the pastures even where there is a good bite of grass; but how much better it is to give such food in the mangers at milking time night and morning. As the nights are growing longer and the weather colder the fattening sheep which have hitherto done well upon early Turnips or Rape, or in some cases Cabbage or Thousand-headed Kale without any hay, should now receive some in chaff; but at the present price of the article we think cotton cake and meal mixed with cut roots more profitable feeding than hay chaff. About 1 lb. of the mixture per head per day is an ample allowance, especially if the root food is passed through Gardner's cutter. Some farmers object to cutting common or hybrid Turnips for sheep, as they are so much softer and more easily eaten than Swedes; but it is a mistaken idea, for the waste during their consumption on the land is considerable, and the animals have in fact to work for their living, whereas when cut and placed in troughs the roots are always clean and may be consumed without waste if the troughs are not over-filled. Little and often is the best mode of feeding, and it is the only way of feeding with cake or meal in admixture with the cut roots by which waste more or less can be avoided.

We have looked over lately some of the finest flocks of horned Somerset ewes to be found in the kingdom, and find that they are lambing fast and bring a large number of twins—in fact, all the horned ewes of Somerset and Dorset breed are earlier to lamb this year than in the average of seasons. The Dorset Downs, also, are early to lamb, but these of course lamb in December and January, whilst the Hampshire and Wiltshire ewes lamb in January and February. We have noticed for many years that in dry hot summers like the past season up to the middle of August the ewes of each breed will always breed earlier, and the lambs come better together than in cold sunless seasons like 1879. The early Somerset lambs as they fall should now, together with their dams, be drafted from the flock, and the ewes will bear the best of food, both of roots, cake, meal, &c. As soon as the lambs are strong enough to follow the ewes they may together go into Italian Ryegrass for a while in the daytime, but receive a fold of roots at night on dry ground. Italian grass is, however, the food which will produce more milk than any other food. The ewes should be cooped every day, and those which have more milk than the young lambs can take the shepherd should milk dry by hand, otherwise penned milk will kill the lambs. If the ewes and young lambs go on to young Clovers they should be removed at night; it being the coldest lying for them they often suffer from rheumatic affections and become crippled, for which there is no cure, and we have found that they should then be destroyed and another lamb placed with the ewe. The flocks of Wiltshire and Hampshire ewes should now be regularly kept without a heavy fold of food night or day, especially of roots, for at this period of their pregnancy they are more likely to abort than later on and nearer to lambing time.

We use straw chaff, as it will not answer to give dairy cows hay at present prices and during the winter, when they are comparatively out of profit. As soon, however, as they drop their calves they should receive hay and straw chaff mixed together with a moderate quantity of cut Mangold, and mixed with a liberal allowance of oilcake; and the better they are kept the more profit they will yield, either for making butter, milk for sale, or suckling calves for veal. We do not recommend the fattening of many pigs for sale, as we do not think they pay so well as fattening bullocks. Our mode of feeding, however, is to mix meal with pulped Mangolds at the commencement, using the proportion of two-thirds Mangold to one-third of Barley meal, or a mixture of Bean, Barley, and Maize meal, gradually during the process of fattening increasing the quantity of meal, and finishing off by several weeks of feeding with meal only. Instead of fattening many pigs we prefer to keep a number of breeding sows fed on roots and cheap meal food, and allow them to run in well-littered yards, in which case they make much manure and are sure breeders. The profit arising is by the sale of the young pigs as stores at about 25s. or 30s. each, and when the large white Yorkshire is crossed with the Berkshire breed we obtain large farrows of the most valuable pigs at weight for age.

LAXTON'S EARLY MAPLE PEA.—Mr. Laxton is now distributing this new agricultural Pea, which he states was raised by crossing the old Maple or Partridge Pea with the earliest white variety, the result being a Maple Pea which is quite as forward as the earliest garden Pea, and three weeks in advance of the old Maple. The height from 4 to 5 feet. In all other respects it

possesses the good and useful qualities of the old Maple. The advantage conferred by the new Pea will be appreciated by agriculturists, as, if sown in February, the ground can, in an ordinary season, be cleared early in July, and a successional fall crop secured. The yield of this variety in 1880, from unmanured ground under plough, was at the rate of eight quarters per acre. In the past season the crop was harvested in good condition before the autumn rains commenced, and no better exemplification for the necessity of this variety could be afforded, as in most instances late Peas have been harvested in a very unsatisfactory manner in 1881.

POULTRY AND PIGEONS

POULTRY HOUSES AND YARDS.

To the fancier that is, or is to be, autumn should be suggestive of the subject of poultry houses. Those who have them may be quite sure that before winter they require some repair and attention. Those who are for the first time going to set up poultry—and be it remembered that the late autumn is a very good time to begin—will find some hints on the construction of abodes to their birds not out of place.

We need hardly repeat what we insisted upon but a few weeks ago, that the absolutely necessary requirements for a poultry house are a watertight roof and a dry floor. We have known birds thrive well in poor draughty sheds, yet dry above and below. Thatch, besides being picturesque where poultry houses are in shrubberies and pleasure grounds, is an excellent covering, warm in winter and cool in summer, if it be well kept up and recovered from time to time; this, however, makes it a somewhat expensive luxury. Where roofing has entirely to be renewed we should recommend corrugated iron—not, however, as the sole covering, for this would be too cold, but as the outside covering of an inner boarded roof. A layer of straw may with advantage be placed between the boards and iron. We need hardly say that the flooring must not be of bricks or stone, but of earth rammed down hard, elevated a few inches above the surrounding soil; over this hard substratum some sand or sifted earth may be thrown, which much facilitates the cleaning process and helps to keep the abode sweet. A house with a damp floor cannot possibly be clean or healthy. To those who have no poultry houses at all to begin with, and are going to construct them, it is only possible to give somewhat vague advice. Circumstances and premises are too various for there to be any stereotyped model house suitable to all; these absolute requisites must be borne in mind, and the best be made of any sheds and appliances to hand. We have houses of very great variety, and suitable to the requirements of fanciers very differently situated. For those whose space is small, and who wish to see the whole of their feathered stock at a glance, a row of small houses under one roof is useful. Each house, of course, has its own small run in front, and the inmates of each in turn are let out on to some grass plot or into some little shrubbery for exercise and recreation. When space is no object entirely detached houses are best; there is in such little fear of disease spreading or of the ground being tainted. Cheap and comfortable dwellings for a family of Bantams or a couple of larger birds may often be constructed in corners of walled yards; two sides only of boarding are required, and if the aspect be good the shelter is complete. For tufted fowls especially such places are very desirable, and in addition the whole of the little run attached may with advantage be covered over. The remote detached house, buried in a wood or in a rich meadow with long grass, which is a perfect paradise for Dorkings or Game, would be death to Polish, which are sure from their impeded vision to lose their way in rough places. The small cage-like abode, on the other hand, which will do well enough for them provided they get an occasional grass run, would be an absolute prison to more peripatetic breeds.

Moveable houses are a great boon to every fancier who has plenty of room; ground may thus be constantly changed without any trouble of its artificial refreshment, and if only ordinary care be taken both garden soil and grass land may be benefited as much as the birds. Moveable houses may be variously constructed. We have seen some among the prize appliances at exhibitions floored and raised high on wheels, not unlike the houses of gipsies, to be moved by horse or donkey. For our part we always prefer house, coops, and all such things of very simple construction. Our own moveable houses are small cabins, some with wooden floors 3 or 4 inches from the ground, and on small wheels. They are easily pushed about from place to place. Others have no floors or wheels, but are lifted by handles. These are specially adapted for

grass fields and for summer use. If they are constantly moved the grass is greatly benefited by the droppings. We put our broods into them as they outgrow their coops. A house is easily brought to the position of the coops and put in its stead. The chickens at once take to it, and then it is pushed off by degrees in any direction desired. The bottoms of these houses, which rest on the ground, are apt to rot if used through winter in damp places.

Yards now require attention as well as houses. The gravel of small wired-in aviaries becomes tainted sooner than one would think, and often is so while it still looks clean. It should be renewed now, or if of a very shingly and rough nature may be taken up and washed by being pumped on in coarse garden sieves and then put back again. Turf which has been eaten and trampled down through the summer should now spring up luxuriantly when the stock of birds is not too numerous for their runs; when it does so it will absorb the taint of summer, but if it fails to grow properly it should now be taken up (for manure and potting it will be very valuable), and fresh laid down in its stead. When poultry run under shrubs and pat down, as they generally do, the earth, it should now be forked over. Shrubs and birds will both profit by the operation. Every enclosed grass run is the better for a grand walk through it; this affords a dry spot, where the birds can always stand in wet weather, and they are at the same time provided with a stock of grit to peck at.

We need hardly say that if poultry runs are in a damp situation and on a damp soil they must be well drained, and if they are already drained this is the time to see that all pipes are clear and in working order. Gallinaceous birds are natives of lands for the most part dry, and if creatures whose delight it is in a state of nature to roll and bask in dusky banks are kept in muddy swamps they cannot possibly thrive. We should be almost ashamed to treat our readers to such simple instructions were it not that we are constantly seeing poultry kept in conditions in which it is quite impossible for them to bring pleasure or profit to their owners, and this not by those who utterly ignore them as unworthy of their attention, but by people who consider themselves fanciers, and believe their arrangements peculiarly good. It is often painful for a real lover of birds to see the misery which many endure through the long English winter from the utter ignorance or indifference of their owners about their nature and habits; we do not therefore let pass a season in which much may be done towards housing them in a humane manner through the coming winter.—C.

PEKIN DUCKS.—Your correspondent "C." appears to miss the point of the especial merits of Pekin Ducks—namely, their hardiness, fertility, and early maturity. My experience has been greatly in their favour on these points; whole sittings hatching out without fail, very few young birds dying, and their being ready for table by the time they are fourteen to sixteen weeks old, and then weighing over 4 lbs. They should be eaten before their first moult.—F. R.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1881.		Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
October.			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun.	9	29.833	45.0	44.2	N.W.	49.5	52.1	42.2	65.4	40.8	0.010
Mon.	10	30.044	44.8	42.7	W.	49.1	57.4	37.6	90.8	32.4	—
Tues.	11	29.754	57.6	54.8	S.W.	49.5	63.4	49.4	91.7	45.3	—
Wed.	12	29.826	51.0	47.6	W.	50.3	57.3	44.6	80.6	37.9	0.013
Thurs.	13	29.832	48.7	45.5	N.W.	50.2	55.3	43.0	92.6	35.7	0.556
Friday	14	29.070	56.9	50.5	W.	50.4	59.3	47.9	100.6	45.6	0.028
Satur.	15	29.928	43.8	40.6	N.W.	49.7	51.4	35.7	97.5	31.0	0.070
		29.755	49.7	46.5		49.8	56.6	43.1	88.5	38.4	0.677

REMARKS.

- 9th.—Fair, but cloudy and cool; brighter with slight sunshine at 4 P.M.; slight shower in evening.
 10th.—Cloudy and dull nearly the whole day.
 11th.—Fine pleasant day, but rather cloudy, especially in the morning.
 12th.—Fine pleasant morning with a little sunshine; dull afternoon and evening, with slight showers.
 13th.—Fine morning, dull afternoon, wet evening and night.
 14th.—Unusually strong westerly gale all day, with occasional sharp showers.
 15th.—On the whole fine and bright, but with a very heavy shower just after noon.

The chief feature of the week has been the very heavy gale on Friday the 14th and the sudden fall of the barometer which preceded and accompanied it. The temperature was very similar to that of the previous week, and not far from the average.—G. J. SYMONS.



27th	TH	Sale of Orchids at Mr. Stevens' Rooms, Covent Garden. 20TH SUNDAY AFTER TRINITY.
28th	F	
29th	S	
30th	SUN	
31st	M	
1st	TU	
2nd	W	

WHAT PLANTS USE.

(Continued from page 249.)

SOURCES OF PLANT FOOD—POTASH.

WE have seen that potash is a principal ingredient in the ash of plants, and especially so in the case of those cultivated for food. It may be laid down, indeed, as a general rule, that any ordinary rotation of garden crops will remove more potash from the soil than any other mineral compound. If the plant food which is being continually added contain potash in sufficient quantities the fertility of the soil, so far as that depends on the presence of potash, will not diminish. At the same time it is possible to cram soil full of manure and yet the soil prove less productive than it ought to be. Our conviction is, that this is the state of matters in nine-tenths of our gardens. Over-manuring is a decided evil, yet we are safe in saying that many over-manured gardens are infertile more for want of potash than because of an excess of other substances. No matter how abundantly lime or soda may be present, if potash be deficient the plants will only grow to the extent of the potash they find. Hence plants may starve—do starve—on a soil that for other plants may be extremely rich. When we examine what is given as plant food in a majority of instances we can easily see that such must be the case. Ordinary farmyard manure—that made of about the usual number of all the different animals usually found on farms—contains the substances we have named in proportions approaching the following figures. We ought to state here that analysis of farmyard manures can only be approximate, as the kinds of animals kept, the state of the drainage, and the food used, all tend to make differences in this respect. Farmyard manure contains of water, 72.48; organic matter, 13.94; potash, 0.32; soda, 0.16; lime, 0.59; magnesia, 0.02; phosphoric acid, 0.31; sulphuric acid, 0.12; carbonic acid, 0.52; ferric oxide and alumina 0.45; sand, 11.09; total, 100.00.

A reference to the above results will show that ground continually enriched with such manure, and cropped with a rotation of garden crops requiring more potash than lime or phosphoric acid, may present these last two in due or over-abundance, and yet fail in presenting enough of potash; or if such manure be applied in quantities sufficient to furnish enough potash, then many other valuable matters are partly lost, or may in time, under certain circumstances (such as we mentioned in a former paper when urging the necessity of washing Vine and other borders under glass), accumulate to

an injurious extent. That in many instances this is so could very easily be proved. In the case of manure from cow houses matters are much worse, as, for a reason to be presently explained, cow manure is originally deficient in potash. We wish particularly to dwell on this, for our aim is to draw special attention to the source of potash, and the necessity of furnishing an abundant supply in order to secure the greatest economy, and economy, always a virtue, has become in many instances a pressing necessity in many gardens.

Those who read this and who may believe that there is "something in it," may wish to experiment in order to prove the truth or otherwise of our assertions. We wish nothing better, and hope the data here furnished may be heeded, so that any experimenting which may be done may be really calculated to produce the right effects.

We have shown that potash is largely demanded by Potatoes, and also hinted our belief that most garden soils are deficient in it. We know of no plant that will more readily show whether this is the case or not than the one named. We have carefully experimented with artificial and natural manures rich in potash salts, and this on maiden soil and in rich old garden soils, with surprising results. Before giving some of these we beg to submit the following well-known facts—1, Potatoes on old rich garden soil produce much greater crops of haulm than of tubers; indeed, great crops of these are not the rule in such soils, and heavy supplies of manure increase the evil. To prove this we intended quoting from different authorities, including the Journal; but the writers of almost every article on Potato-growing so agree with other writers on this that we content ourselves with merely restating a well-known fact, and such as every gardener of any experience is acquainted with. Surprise and astonishment is often expressed at this fact, but it is one which the student of agricultural chemistry would expect, and amply verifies what has been often called mere theory. Considering that garden crops tend, under ordinary manuring, to exhaust the soil of what is necessary for the formation of Potato tubers, and tend to an accumulation of what ought to produce a grand crop of haulm, no surprise need be felt when big shaws and small Potatoes are produced on "rich" garden soil. Rather should the occurrence be taken as proving the accuracy of what the chemists have taught.

No artificial and no natural manure surpasses urine, and especially cow urine, for supplying potash to plants. One would, therefore, suppose that a dressing of urine to soil intended for Potatoes would in all cases prove beneficial. But such is not the case. This seems paradoxical, but a little thought shows that it is not. Urine is also rich in compounds of nitrogen, which excite rank growth. Therefore, although much potash is applied with the urine, the nitrogen supplied with it causes a growth so strong that, small as is the amount of potash needed by the haulm, the extra growth it makes takes much of the potash, and little is left to be available for the formation of tubers. At least, this is how we explain the action of urine when applied to Potatoes on rich garden soil. Whether the explanation be correct or not the fact remains, and with facts we deal.

This experiment we have made repeatedly, and for comparison we have also made another under exactly the same conditions. Wood ashes, as is well known, contain much potash in a form very easily appropriated by plants. On rich soils we have

invariably found that a dressing of fresh wood ashes to the Potatoes at planting time scattered between the drills after the plants appeared, to have a wonderful effect in increasing the crop. It also promotes a robust growth in the haulm—possibly by presenting abundance of lime for their use—at least, the effect of wood ashes in promoting haulm-growth is very much less marked on well-limed land than on land where lime is deficient. Kainit, a salt rich in potash, we have also found to give an increased quantity of tubers; and what is of more value than mere increase of crop, kainit salts and wood ashes, on soil rich in vegetable remains, produce Potatoes of decidedly better quality than do stimulating manures containing much nitrogen, such as ordinary manure and urine. In America it is always found that virgin forest land newly cleared produces immense crops of the very finest Potatoes. The fineness of quality is invariably attributed to the abundant supply of potash present in the soil consequent on the clearing fires.

Recent experiments in plant-growth go to prove that no starch can be formed without the presence of potash, and without starch growth is an impossibility. We quote the following from a lecture delivered by Professor Otway before the Connecticut State Agricultural Society—"If we examine a green leaf with a microscope we may find in it thousands of minute sacs, or cells as they are called. Some of these contain the green substance called chlorophyll. Inside these grains of chlorophyll appear still smaller grains of starch. Starch is composed of the elements carbon, oxygen, and hydrogen. It is produced inside the leaves. The carbon is taken from the carbonic acid of the air by the agency of the chlorophyll, is united with oxygen and hydrogen, the elements of water, and thus starch is produced. After starch is so formed it is conveyed to the other parts of the plant, and stored away as with Potatoes or grain, which consist largely of starch, or is transformed into the other materials of which the plant is made up, and this formation of starch with chlorophyll grains, and transportation, transformation, and storage to build up the plant, is going on continually as the plant grows. If, then, no starch is formed by the chlorophyll in the leaves, normal growth is impossible." Again: As Dr. Nobbe says at the conclusion of over a hundred pages of description of his experiments—"Without potash the plant cannot assimilate (the materials needful for its growth) and shows no increase in weight, because without the co-operation of potash in the chlorophyll no starch is formed." The fact that wood ashes and kainit applied to ground rich in organic remains never fails to produce Potatoes of the best quality, was long a puzzle to us. Indeed, we attributed it to another cause. The fact remained, however, and whenever we possibly could we profited thereby. We have dealt at some length with this division of our subject, but the matter is of much importance, and we may be pardoned for details and quotations in our endeavour to press the matter home on those who may never have given the subject a thought.

Although on rich soils the application of urine failed to give anything like the favourable results we expected, we have again and again found that its application to new land containing very little organic remains, and deficient in ammonia or nitrate salts, to be of great benefit to Potatoes. It must never be forgotten that the leaves manufacture all the substance of the plant, and to expect a full crop of Potatoes or anything else from a stunted growth of shaws is expecting too much. On such soils as produce through poverty only a stunted growth, the nitrogen in urine never fails to increase the manufacturing part of the plant—the leaves; while in the case of many plants, and especially Potatoes, the potash added contributes very materially to the formation of starch in the form of Potatoes, grain, and all other vegetable produce.

We have been led to say thus much on the application of manure to Potatoes, because these stand alone in our experience in being rendered at once stronger and yet less prolific by the application of manure rich in potash, rich in nitrogen. To almost all other garden crops, the Leguminosæ excepted, urine may be freely applied if properly diluted; and on soil long cropped with ordinary vegetables will do good only by supplying the deficiency of potash, while the nitrogenous matters will reinforce the effects of the potash salts. Such is our experience, such is our practice. We have produced results by the use of urine which without it we could not have done, and we consequently strongly recommend others to use it. We ought to caution beginners, though. As it comes from the tanks it is so strong that, applied without being diluted, it is destructive. Never apply it to dry soil unless diluted with eight times its own bulk of water. When the ground is wet and the rain is falling less will be sufficient. When applied in winter it need not be diluted at all. It is much more profitably applied to growing crops, however, but it is a pity to let it run to

waste even in winter. Applied during winter to quarters of small fruits it promotes vigour and increases the crop wonderfully, especially when the bushes are old.

To let every reader of this understand why the application of manures rich in potash is, on economical grounds, advisable in the case of garden ground, we should say that in the economy of all animals, and especially those which are domesticated, the potash which is in their food is excreted chiefly in the urine. Those who only use the solid matters require to use much more of it than is necessary in order to produce a given result.—SINGLE-HANDED.

(To be continued.)

FRUIT TREES CANKERING.

I AGREE with what "A NORTHERN GARDENER" stated in the Journal last week about the cause of canker in fruit trees. I have made this a subject of observation for many years, and the conclusion I have come to is identical with his. The general idea is that canker proceeds from ungenial and wet soils, and these are no doubt concomitant causes, but the immediate cause is frost, as I shall presently show. That the cold, wet, ungenial soils have a great deal to do with it in the way of making the trees more susceptible of attacks of frost is true, for in all such soils, especially in wet seasons, the young wood of the fruit trees rarely ripens properly; the tissue is loose and succulent, the sap vessels are full of thin watery fluid, and when winter comes with its severe frosts the tissue is ruptured, the fluids are extravasated, and canker is produced.

There are some varieties of fruit trees which are naturally of a delicate constitution, and are more amenable to such a condition as I have described, even after seasons that are not remarkable for their superabundance of moisture. The Ribston Pippin is one of these. It matters not what soil it may be in, unless it be one that is unusually light and warm it almost invariably suffers from canker. Twelve months ago I planted some standard Ribston Pippins, very handsome trees from a well-known nursery. When I planted them they had all the appearance of rude health, and I indulged the hope that I had got a stock of this favourite Apple that would some day bring pleasure as well as profit to me. But these bright illusions have all been dispelled; for this summer every one of these have been attacked most virulently with canker on the stem, and in some instances it has eaten so deeply into the substance of the stem that during one of those severe winds we had a few weeks ago they have snapped in two as if they had been rotten sticks. Now in this case subsoil could have had nothing to do with it, for these trees had no time to penetrate it, or even to stray from the fine loamy soil in which their roots were planted; but the injury was done before I received the trees from the nursery, and I shall be surprised if many more planters besides myself cannot tell the same tale this year. The reason is that both last winter and the previous one were so severe that great damage must have been done in this way.

What I have said of canker is equally true of gum. Gum in stone fruit trees is merely the analogue of canker in Pippin fruit trees. Its effects and its causes are the same. The dying of large portions of Apricot trees is attributable to the same cause. "How can that be?" I think I hear someone say; "the branches of Apricots die off in summer when the tree is covered with leaves." True, friend, but the mischief was done in winter; nay, perhaps even two winters before. The tissue received its injury then though not destroyed; the branch lived and lingered till it could live no longer, and when the demand upon its resources was made by the fully developed leaves, the wounded tissue failed in its functions and the branch died. Such is, what I believe after many years' study of the subject, to be the true history of canker. It is simply the action of frost on delicate tissue; and as the strength of the tissue varies in different trees either from their natural constitution or from circumstances of soil and climate, so are some varieties more capable of resisting, and others more liable to suffer from its effects.—H. B.

TRANSPLANTING FOR SPRING GARDEN DECORATION.—I have been at this work whenever opportunity offered during the past month. The beds and borders are now nearly all filled, and in general more than a score of small beds are each furnished with three different varieties of hardy flowers, principally propagated from cuttings or seeds during leisure hours. Pansies are great favourites, and I raise all from selected seed. Cuttings are much inferior in flower, and less robust. I grow largely the Dianthus family—Carnations, Picotees, and Pinks. So of the Primulas, Polyanthus, Auriculas, &c. No plant is better than Anemone coronaria

in late spring, when bulbs are failing. Irises, *Alyssum saxatile*, and Variegated *Arabis* make a handsome bed. There are plenty of popular good old plants to select from, including *Phloxes*, *Campanulas*, *Delphiniums*, *Veronicas*. I would recommend good manuring before planting now.—W. J. M., *Clormel*.

OAKFIELD HOUSE, WIMBLEDON PARK.

AMONGST establishments where large and diverse collections of plants are grown Oakfield House has for some years occupied a prominent position. It is not celebrated for large specimen plants of a few kinds such as are seen at exhibitions, nor for an extensive collection of the popular Orchids, but it has a speciality which is scarcely excelled in any other garden of similar size. Hardy plants have long been favourites with the enthusiastic proprietor, G. J. Joad, Esq.; but he has by no means confined his attention to them,

for half-hardy and other plants from temperate regions, requiring in this climate protection from frost during the winter, have been equal favourites, and in few if any gardens will be found such an interesting and well-grown collection so well provided for as regards house accommodation. By personal collection, purchase, and exchange considerably over three thousand species of plants have been obtained, and the number is being constantly increased, so that quite a small botanic garden has been formed. This total includes the occupants of the stoves and intermediate houses, but the two first-mentioned sections are by far the most strongly represented.

The garden is pleasantly situated on the east side of Wimbledon Common, and is sheltered on three sides, but somewhat open to the north, and in consequence the winds occasionally injure the plants outside in the more exposed positions rather discouragingly, but for the rockeries and several collections of hardy plants the positions have been carefully selected with a view to affording them all the shelter possible. October is not the best time to inspect a collection of herbaceous plants, as few besides *Asters* flower so late, and the approach of winter is too evident in the majority of the occupants. When, too, the frosts have destroyed the *Dahlias* the brightness of



Fig. 63.—*ABELIA RUPESTRIS*. (See next page.)

the outdoor garden is chiefly lost. So, although at Oakfield many very choice and rare plants are grown in the outdoor garden, few were in condition to demand notice except as regards their general health and vigour.

The Alpines and rock plants seemed particularly satisfied with their position. The two rockeries are not elaborate structures, but are well designed and admirably suited for their occupants. They are both made in a similar style—namely, like small dells, the sides sloping down below the general surface level to an irregularly winding path in the centre, which is 3 or 4 feet below the surface. A very sheltered position is thus afforded, and the only circumstance that might be thought to have an injurious influence upon the plants is the probability that there would be an accumulation of moisture during wet seasons. This, however, does not appear to be the case to any great extent, and is no doubt due to careful preparation before the rockery was built. The stone employed is informally disposed in various-sized pieces, chiefly with the object of forming suitable ledges and recesses for the plants; and without any attempt to provide an

imposing effect, it yet has a naturalness which is often wanting in such structures.

The cool houses were, however, at the time of my visit the most attractive; indeed, throughout the year, even at the dull season, some plants may be seen in flower more or less beautiful or interesting. In many gardens such houses might usefully replace the small greenhouses and conservatories which amateurs like to keep gay with some of the conventional decorative plants that produce a brighter effect as regards colour, but become rather uninteresting when a sufficient diversity is not at command. In establishments where there is abundance of material to vary the display frequently, conservatories even of the most formal construction are always attractive. Mr. Joad's cool houses are, however, especially interesting, because botanical curiosities, though well represented, are not allowed to supersede plants that possess unquestionable beauty in flower or foliage. Again, few plants of one kind being grown, there is no lack of variety, and some are always in flower, though spring and summer are the chief seasons. One great and very satisfactory feature is

that the occupants are all planted out in beds, and we thus escape the unpleasant formality of rows of flower pots, which always have a hard and incongruous appearance even in the most tastefully arranged houses. One of the structures referred to is span-roofed, 40 feet long and 18 feet wide, with a hed in the centre and one at each side, separated from the walk by a brick wall. These heds were carefully prepared, the drainage being good, and upon this is placed about 2 feet depth of turfy soil, the stations for the more delicate plants being specially prepared by the addition of sand or peat according to their requirements. The house is provided with abundant means of ventilation both at the top and sides, and three rows of 3-inch pipes on each side are found sufficient to prevent the temperature falling below 40° in winter. By free ventilation at all times when the weather is not too severe the plants are rendered sturdy and hardy, and their vigorous growth is surprising. Nor with comparatively unlimited root space is the production of flowers diminished; on the contrary, all appear to be as floriferous as could be desired, and more than could be expected in many instances under culture in pots.

To enumerate the contents of this house would far exceed my purpose, but there were some plants which cannot be passed unnoticed. The roof is covered with numerous climbing plants, among which *Bomarea Caldasii* and *B. Carderi* are notable, the former a handsome plant which flowers freely, the latter smaller but progressing well. *Hahrothamnus* or *Cestrum aurantiacum* is very distinct in the colour of the flowers from the better-known species, but very similar to these in other respects. The deep yellow or orange-coloured trusses are freely produced, and the plant might be advantageously grown as a companion to *H. elegans* and *H. fascicularis* in many gardens. *Clematis indivisa* is too well known and valued to need description. It is represented at Oakfield by a fine specimen, which produces abundance of flowers early in the season, when they are always welcome. *Hibbertia dentata* is another climber that is very attractive when in flower. In addition to many others, handsome examples are noteworthy of *Abutilon vexillarium*, *Rhodochiton volubile*, *Plumbago capensis*, *Convolvulus Herminieri*, and *Tacsonia insignis*, the latter being extremely vigorous, and is greatly valued for the lengthened supply of beautiful flowers it affords. Of the specimens growing in the side and central beds, the two finest are *Lasiandra macrantha floribunda* and *Abelia rupestris*. The former is a grand example 4 or 5 feet in diameter, and bearing its rich purple flowers 5 and even 6 inches in diameter. The *Abelia* (fig. 63), is of similar size, with small ovate shiny green leaves resembling the common Myrtle, and clusters of white tubular or inflated flowers, which are produced in succession throughout the greater portion of the year. Even in a small state this plant is very useful, but when planted out and having attained to a good size it is especially beautiful. *Calceolaria bicolor*, a free-flowering and attractive species, grows strongly in the side bed, and by cutting the old growths out and taking up the young shoots it is had in flower constantly. Indeed, for the past eighteen months it has not been without flowers, which are borne in large clusters, and are bright yellow and white in colour. Though the blooms are not so large individually as *C. Pavonii* they are quite as attractive. Judicious applications of weak liquid manure are found to assist this plant considerably, forwarding the growth and improving the size and colour of the flowers.

Burchellia capensis is quite at home in the central hed, and seldom is so fine a specimen seen, proving the advantage of planting out in this as in many other cases. The curious *Pelargonium tetragonum* figured in the Journal some months ago, is notable for its four-angled stems, so unlike the majority of its genus. Another curiosity is *Crassula lycopodioides*, the chief character of which is well expressed in the specific name. It has small stems with short dark green leaves closely set in an imbricated manner, exactly in the style of the *Lycopodiums*. *Myrtus bullatus*, an Australian species, is, too, one of the most remarkable species of *Myrtus*, the leaves being of a peculiar brownish hue, so suggestive of ill health in most plants, and the surface is blistered, if it may be so termed, between the veins, after the manner of a Savoy leaf, to give a well-known example of what botanists term a hullated leaf. *Beaufortia decussata* is not only peculiar, it is very handsome even without flowers. It is of shrubby habit, and might easily be mistaken for one of the stronger-growing *Epacrises*, the small rigid dark green leaves being arranged closely on the long vigorous shoots. The distinct and pretty *Calceolaria violacea* deserves notice, for it is neat in habit and foliage; and though the flowers are small, the freedom with which they are produced and their delicate violet purple tint render them very pleasing. The Ivy-leaved Groundsel, *Senecio macroglossa*, covers a portion of one end of the house, and may be ranked among the curiosities, though it is not deficient in attractiveness, the dark green leaves possessing a remarkable resemblance to some of the small-leaved Ivies. Another useful plant for the roof of greenhouses is *Fuchsia thymifolia*, which there is trained up one of the rafters and produces multitudes of its diminutive rosy flowers. One other plant demands attention, named a non-climbing form of *Rhynchospermum jasminoides*, which in the central bed has grown into a compact shrub-like specimen quite unlike its usual habit.

Another house in two divisions, of similar construction, except that it has a three-quarter span-roof, is occupied with many plants equally as interesting and beautiful as those already mentioned. One of the

most attractive, however, was a handsome example of *Swainsonia magnifica*, which covered the partition in the centre of the house. It is regarded as an improved form of *S. Greyana*, which it resembles in the long pinnate dark green leaves, but the flowers are larger and of a brighter rose colour. The specimen was bearing some dozens of racemes, and in such condition the value of the plant cannot be rated too highly. *Hibiscus Hugelii* is a noteworthy species, the leaves being very neatly divided into narrow segments like some of the fragrant-leaved *Pelargoniums*: the flowers are large, of a purplish hue, and the plant is by no means unattractive. Another form of the same genus not at all common in gardens is *Hibiscus Manihot*, long known in this country. It is chiefly remarkable for its large bright yellow flowers and handsome divided leaves, which average a foot in diameter. Some of the dangerous *Loasas* thrive well in this house, their pretty and curious flowers tempting the unwary to examine them more closely. *Convolvulus mauritanicus* trails downwards from several nooks in the back wall, and the numerous flowers have a pretty effect. *Luculia gratissima* also succeeds well planted out; but a specimen of *Bougainvillea glabra*, though appearing in perfect health with large and glossy leaves, does not flower well, and seems to be deteriorating each year. In this and other houses several species of *Calceolaria* are grown. Indeed there is a very good representative collection, including, besides the two already mentioned—viz., *C. bicolor* and *C. violacea*—*C. Pavonii*, recently figured in the Journal; *C. hyssopifolia*, *C. glutinosa*, *C. crenatifolia*, *C. pulverulenta*, *C. lobata*, and the curious *C. fuchsiaefolia*, which has leaves precisely resembling those of a *Fuchsia*. With respect to *C. Pavonii*, it may be observed that at Oakfield plants are grown out of doors during the summer months, and fine specimens are produced, especially in sheltered positions near a wall. But it is found that they cannot be preserved through the winter. Covering the roots will not preserve them in such seasons as we have experienced of late years. The best plan is taking cuttings every autumn, striking them and growing the young plants on for the following year, fine specimens being obtained with a little assistance.

What is termed the Fernery is a double span-roofed house about 24 feet square, heated to a tropical temperature, and contains Ferns, various Gesneraceous plants, *Clerodendrons*, *Thunbergias*, and other plants. The central hed has fine specimens of *Canna iridiflora*, one of the best of its genus, with large crimson flowers. *Thunbergia fragrans* is trained on the roof, and its white sweetly scented flowers mingle with the rich crimson blooms of *Ipomæa Horsfalliæ*, which is also trained on the roof and bears fine clusters of handsome flowers. *Stigmaphyllon ciliatum* trails along the rafters, and its yellow flowers afford a fine contrast with the purplish *Convolvulus*-like blooms of *Batatas paniculatus*. The manner in which the side stages are draped and the pipes concealed is noteworthy. Near the edge of the stage is a line of *Selaginella*, and from this a fringe of *Panicum variegatum* hangs down 2 feet or more in length. Below this in front of the pipes a few pieces of rock are placed, and, covered with *Selaginella*, form an effectual screen. The margin of the centre hed is formed of *Fittonia argyroneura* and *F. Verschaffelti*, and constitutes a pretty finish; the large specimens of *Caladium esculentum* and *Alocasia violacea* imparting quite a tropical appearance to the house, which, though small, is far more attractive than some of much larger dimensions and more pretentious exterior.

To many no house in the garden would possess more interest than the Rockery, a span-roof structure with glass at the top and sides, but having a central wall built of tufa and imitation sandstone disposed in an irregular but natural manner, so as to form numerous ledges and nooks, in which are planted many choice and pretty alpine and other plants. The lower portion and near the sides of the house is constructed in the same way, so as to form a rockery under glass: and though no heat whatever is afforded artificially, the protection is sufficient to preserve many plants that would be lost outside, or would at all events not succeed so well. Small pools of water contain abundance of the curious ally of the *Salvinias*, *Azolla pinnata*, which floats on the surface of the water, and is of a rich deep green colour, quite different from that it possesses in warmer quarters. In one of the nooks *Campanula isophylla alba* was literally a mass of flowers, pure white, and an inch or more in diameter. All the plants are thoroughly healthy and seem to like their position extremely.

Several houses are devoted to tropical plants, many of which are very beautiful and some rare, and much might be written concerning them, but as these notes have already reached considerable length we must confine our observations to two of them. One is a seedling *Begonia*, the result of a cross between *B. semperflorens* and *B. Schmidtii*, the latter parent being a compact-growing form of continental origin, with leaves something like *B. metallica*, only smaller. This seedling partakes of the latter in the habit, but it has small white flowers and green leaves like *B. semperflorens*, but smaller and darker green. It is very free in flowering, and the neatness of its habit recommends it strongly. The other plant is *Rondeletia anomala* (fig. 64, page 377), a scarce species but very beautiful. The specimen referred to is suspended from the roof of an intermediate house, and has numerous clusters of rich coral red or deep scarlet flowers. It is grown in a shallow pot or pan, a compost of peat, light turfy loam, and sand being found to suit it admirably. Why this plant is so rarely seen it is hard to understand.

In these notes a small proportion of the plants at this establishment have been referred to, but it will convey some idea of the

number of species represented. Throughout, the healthy condition of the plants, the cleanliness and neatness everywhere prevailing, are creditable in no ordinary degree to the gardener, Mr. Smith, who takes as much interest as his employer in the welfare of the collections.—L. CASTLE.

BRUSSELS SPROUTS—THE AIGBURGH.

As this vegetable is an all-important one to gardeners who have to keep up a supply, the above-named variety is a great acquisition. Although it has not been in commerce long, it is valued by many as a standard variety. Novelties now are so plentiful that when any variety of vegetable proves really good it is worth recording. The middle of March is a good time to sow the seed, choosing an open position away from the shade of trees. The soil for the seed bed if at all stiff should be dug some time previous to sowing the seed. Sow it moderately thick and protect with a net, as bullfinches and linnets are very troublesome about that time of the year. Treading the soil lightly, or patting with the back of a spade, is also an advantage—it helps to retain the moisture so essential to germination.

At the end of May or first half of June the plants will be ready for their permanent quarters, when the soil should be rich and deeply dug. In planting, 2 feet apart each way is a suitable distance, and when the plants are well established and growing run the hoe amongst them to destroy small weeds. The hoeing should be repeated about three weeks after, and when the plants are about 9 inches or a foot in height, earth them up in the same manner as rows of Peas. These hoeings, even supposing the land to be entirely free from weeds, will prove very beneficial. The earthing-up helps to steady the plants. It is also an advantage to tread or roll the ground firmly before planting, as, if the soil be very loose and light, the first rough wind in the autumn will often blow them almost out of the ground. In light soils, and when the previous crop, say such as winter Spinach or winter Onions, has been well manured, I have often found it best not to dig the land at all, but to plant when it is softened by rain. This useful vegetable can be had in season for at least five months, being as hardy as most of the Brassicas, and the variety above named has succeeded well with me, each plant being furnished with large handsome sprouts.—A. HARDING.

THE USE OF FIRE HEAT FOR GRAPES.

As "SINGLE-HANDED" says on page 317, facts must be dealt with, and mere assumption left out. It is now sixteen years since I grew a house of Grapes without fire heat, and that was twenty or thirty miles south of London. The Vines were allowed to start of their own accord. Sun heat was turned to the best account when the Vines were in flower, and every advantage was taken of closing the house early. I cannot call to my recollection what the temperature was during night, but I am sure it was never as low as 36° or even 40° from bud-swelling onwards. The setting was generally similar to other houses where fire heat was employed. If there was any difference the fire-heated house had the advantage. The produce of the unheated structure was what would be termed passable, but not to be compared to the adjoining house with fire heat from starting. The Grapes in the former house were very late in ripening, and about one-fourth of them damped-off in the late autumn. The varieties were Black Hamburgh and Black Prince.

I consider it a very simple matter to set Grapes without fire heat provided the sun shines for a couple of hours in the middle of the day when the Vines are flowering. By giving the rods a few strokes with the hand the pollen flies, and the setting is almost instantaneous, and not, as many suppose, a slow process. Anyone that has paid attention to a few individual berries the day after the operation will see they have doubled in size—a sure sign the berries are set. Stoning is another subject.

I can see no reason why Grapes cannot be grown without fire heat, or even a vinery, if the climate is hot enough. We might even have Pines without it; but it so happens our climate is not warm enough, although the setting of Grapes can be done. For growing them to perfection in our country they must have fire heat rather strong (65° for Hamburgh and Sweetwater, 70° for Muscat and lates) or else, I fear, disappointments would be common. In my opinion "SINGLE-HANDED" strikes the nail on the head when he says saving a ton or two of coals in spring or summer, to be compelled to burn as much or more to no purpose in autumn, is not economy. How Mr. Simpson managed to carry off first prize in the summer for two bunches at Sheffield with Alnwick Seedling grown without fire heat surprises me, and also, I daresay, many more. If I am rightly informed this is as late a

Grape as Lady Downe's. In that case, if there was any competition, his principal point was wanting, whatever other points he had. It is a great mistake to give a prize at any show to unripe fruit, let its appearance be what it may. The proof of the pudding is the preening o'd.—A HIGH TEMPERATURE COMPETITOR.

I HAVE been favoured with some further particulars respecting the Grapes at Longleat mentioned last week as having been grown on the cool system, and send them with this. They are kindly furnished by Mr. Taylor himself on request, and his statements may possibly cause those of your correspondents who are committing themselves so positively against the cool system to reserve their opinions for the present. There is more to be said on the subject evidently. Thomson's book on the Vine is my authority generally on Vine culture, and may be said to reflect general practice fairly; and I find Mr. Taylor's temperatures are very far below Thomson's, and yet he grows and ripens splendid Grapes in good time.

"SHADE" TEMPERATURES FOR MUSCATS, &c.

For starting.	Flowering period.	After flowering.
An almost even temp. of about 55° night and day.	57° to 60° night. 65° to 70° day. 75° to 80° sun.	63° to 65° night. 70° to 73° day. 80° to 85° sun.

"The above is something like the instructions given to my young men for temperatures for Muscats and thick-skinned Grapes; but I do not pay so close an attention to figures as most people do, and am more afraid of high temperatures than low ones. I do not know anything about the cost of the stewing system, having never practised it. Were my house a lean-to and facing south I should be content with a minimum temperature of 55° at all times; but with large panes facing east it is a little more difficult to manage the ventilation at sunrise, and rusty berries are apt to follow if there has been much rise before air is given. I am a cool-system man, and it will be found on reference to the *Journal of Horticulture* for 8th January, 1874, 2nd July, 1874, 6th August, 1874, and 25th March, 1875, that I have always advocated what is called the cool system.—WM. TAYLOR, Longleat Gardens."

Assuming Mr. Taylor's Grapes and temperatures are a fact it is as plain as any simple subtraction sum, from the above figures and statements, that Grapes of the best quality can be produced by the cool system, and at a great reduction in the cost of fuel.—CORRESPONDENT.

LIQUID MANURE FOR FERNS.

HAVING been in the habit for several years past of applying the above to Ferns, I can endorse all Mr. Gilbert has said about it. The liquid used here is from a farmyard tank, and is applied in a weak state about twice a week. We have some specimens of *Adiantum cuneatum*, *A. farleyense*, and several others that have not been repotted for three, four, and in one or two instances for five years. All these plants are in excellent health, which I attribute mainly to the watering with liquid manure. Small Ferns that are used for dinner-table decoration are often compelled to be grown in very small pots, and for such plants liquid manure is especially valuable.—W. W.

I CAN quite endorse what Mr. Gilbert says about giving Ferns liquid manure, as I have practised it for a number of years; it produces wonderful results on all *Adiantums*, particularly *A. farleyense*. We divide most of our *Adiantums* every second year, when they receive only clean soft water until they have well filled their pots with roots. When the first fronds have been cut and the succeeding fronds not quite matured, and perhaps rather delicate in colour, which is mostly about the month of July, we commence supplying weak liquid manure. The liquid is taken from what is made up for the *Chrysanthemums*, a mixture of sheep's and cow's manure and soot. The next year we commence supplying the liquid manure as soon as the young fronds start growing. I have used ammonia for Ferns with success. The quantity I used was as much as would cover a shilling to a quart of soft water. We purchased it as a powder, in appearance like nitrate of soda, however. My reason for discontinuing it was, I thought, it had too much of a forcing effect. *Lycopodiums* in my experience do not require liquid manure.—H. ELLIOTT.

JASMINUM REVOLUTUM AND EUONYMUS NEAR THE SEA.—Passing through West Brighton recently we saw a very fine plant of the old *Jasminum revolutum* climbing up the front of a house, and in its progress upwards entwining itself in a graceful manner amongst the

large balcony, thus presenting an elegant appearance, and its value as a climber and adaptability for seaside planting. Notwithstanding the severity of the past winter the Euonymuses seem to flourish as vigorously as ever in Brighton. We noticed a number of large plants of *E. japonica* measuring fully 6 feet high and of proportionate width in a flourishing condition.—A CORRESPONDENT.

FRUITS FOR THE NORTH.

I QUITE agree with Mr. Iggulden that brief notes about fruit crops from different parts of England are interesting, but we want also to know what Apples and Pears and other fruits can be profitably grown in the very variable climates we have in England. As there are many sorts which suit the warmer and sunnier southern parts of our island which do not do in the north and east and north-eastern districts, I venture to send a few notes from the North Riding of Yorkshire. Soil light loam, with a substratum of pure sand, which is moist, but not wet. My garden slopes slightly from south to north, and it has nowhere the advantage of a south aspect. We are about twenty miles from the sea, and the sea breezes are tempered before they reach us.

Apples, as a rule, have been very abundant here this year, and in the greatest part of this district; but I cannot say the same for Pears or Plums, and I hardly ever saw such a scarcity of Apricots, which are grown very much on the cottages of many of the villages in this neighbourhood. Though there has been a great crop of Apples on the commoner and hardier trees, such as Keswick Codlin, Cockpit, and Improved Cockpit (Apples much grown in Yorkshire), Scotch Hunthouse, Dumelow's Seedling, Warner's King, Lord Suffield, &c (the two latter more recent introductions), yet I do not think the quality of the Apples is good. The spring was backward, then we had an unusually dry time during June and July, when the young fruit ought to have been growing, followed by very wet weather from the 6th of August to the end of September, which was also very dull, with a very great lack of sunshine. This made the Apples grow, but they ripened slowly, except in favourable situations, and many of the Pears cracked, especially on standards and bush trees.

I append a list of Apples, Plums, and Pears, which I planted against a west wall and as espaliers in a fresh piece of ground, which was added to my kitchen garden in 1875, and planted in the spring of 1876. From some of these I have never had a fruit—namely, Peasgood's Nonsuch, which is a very beautiful Apple, but an uncertain bearer; Gloria Mundi, Tower of Glammis, Duchess of Oldenburgh, and Lord Burghley. Amongst the Pears Doyenné du Comice and Souvenir du Congrès, though against a south wall, and (especially the latter) have made very good growth, have not fruited; nor have Beurré Hardy, Beurré Superfin, or Thompson's against a west wall, or Beurré Hardy, Beurré de l'Assomption, or Fondante d'Automne as espaliers.

The Apples that came into bearing first were Lord Suffield and New Hawthornden, next to them Irish Peach, Margil, and Cox's Orange Pippin. Amongst Pears Zephirin Grégoire came early into bearing, and seems one likely from its hardiness to do well in the north. Amongst Plums Victoria, as is usually the case, was the first to bear; then came Angelina Burdett, which is only moderate as to quality, and Jefferson's and Washington, both the latter exceedingly good. Amongst older established trees I have generally found the following amongst Apples as the most to be depended upon for kitchen purposes—Keswick Codlin, and Lord Suffield its descendant, certainly one of the best and surest bearers, though a somewhat shy grower; then Warner's King, the two Cockpits, the Improved Cockpit being certainly a most useful Apple, and much in advance in point of size to the old one. It is also very good as a bush fruit. Dumelow's Seedling is a tolerably sure bearer, and a good keeping Apple; Alfriston, Old Hawthornden, and New Hawthornden; Glory of Kent, a very sure and prolific bearer with me, and of good quality; Reinette du Canada, Mère de Ménage, and one of the best, which is good also as a dessert Apple—Adams' Pearmain; an Apple which I used to know in Nottinghamshire as Pike's Pearmain. Blenheim Orange is a most uncertain bearer with me. I have it against a south wall of a barn, also against an east wall as a bush tree, an espalier, and as a standard, and they seldom have a good crop of fruit—not two dozen this year on all the trees.

Amongst dessert Apples Cox's Orange Pippin and the old Ribston (if only it would not canker) are the best; then comes Margil, very good, and a surer bearer; Irish Peach, which everyone ought to grow as the best Apple, a good bearer, and good also for cooking purposes; then come Wyken Pippin, an Apple which I am surprised is not more recommended, a very constant bearer, and of very good flavour; Court of Wick, Scarlet Nonpareil, Braddick's Nonpareil, Syke House Russet, Fearn's Pippin, Sturmer Pippin; and for early use Devonshire Qua-

renden, a rather shy bearer here, and Kerry Pippin, small but good. The same I may say, too, of the old Golden Pippin, which is only a shy bearer. There are several others here, both for baking and dessert, from which I get an occasional crop, but the above-named are the best—*me judice*.

Amongst Pears I am surprised so few have named Seckle in the occasional short notes; perhaps it is too small. It is a most hardy and sure bearer here, both as bush and standard, and I wish I had it against a wall, as it used to do well in my father's garden in Notts. The following Pears are fairly to be depended on—Citron des Carmes, one of the best early; Jargonelle, Williams' Bon Chrétien, Marie Louise, Louise Bonne of Jersey, Comte de Lamy, Eyewood; and for walls Winter Nelis, Gansel's Bergamot, Beurré Superfin, Beurré Bosc. I have Beurré Superfin, Beurré Hardy, and Jersey Gratioli as bush fruits; but though some years they are good they are most uncertain. Beurré Diel is, in my opinion, not worth growing. Ne Plus Meuris against a south-west wall bears very regularly, but is not so good as further south. Beurré d'Amanlis against a west wall with me is much wanting in flavour.

Amongst Plums I find these are the best (I have about twenty sorts)—July Green Gage, Green Gage, Victoria, Washington, Blue Orleans for early tarts, Mitchelson's, Pond's Seedling, Jefferson, McLaughlin's Gage, Coc's Golden Drop, Transparent Gage, and for late use (when there is a crop) Reine Claude de Bavay. Transparent Gage is very good if left to ripen on the tree and if well protected from birds, which seem to be very partial to them. There are a few other Plums I have tried, as Petite Mirabelle and others, which seem to require a warmer climate than this. Except under glass Peaches, Nectarines, and Figs are hopeless as far north as this. Can anyone suggest a remedy to prevent the Moor Park Apricot from collapsing, as it so often does when on a south wall, whole branches dying off from the graft? I cannot help fancying that the stock on which it is grafted as a rule does not suit it. The following is the list above referred to:—

APPLES.—*West Wall*.—Two Cox's Orange Pippin, one Peasgood's Nonsuch, one Lady Henniker, one Worcester Pearmain, one Gloria Mundi, one Margil, one New Hawthornden. *Espaliers*.—Ribston Pippin, Cox's Orange Pippin, Wyken Pippin, Tower of Glammis, Lord Suffield, Warner's King, Dumelow's Seedling, Duchess of Oldenburgh, Lord Burghley, Early Margaret, Irish Peach, New Hawthornden.

PEARS.—*South Wall*.—Doyenné du Comice, Souvenir du Congrès. *West Wall*.—Beurré Hardy, Beurré Superfin, Thompson's, Beurré d'Amanlis. *Espaliers*.—Zephirin Grégoire, two Beurré Hardy, Beurré de l'Assomption, Fondante d'Automne.

PLUMS.—*South Wall*.—Transparent Gage (Jefferson), Oullins Golden, Jefferson's, Green Gage, Huling's Superb, Coc's Golden Drop, two Victoria, Washington. *Espaliers*.—Petite Mirabelle, Angelina Burdett, Denniston Superb, Jefferson.—C. P. P.

THE ARRANGEMENT OF CUT FLOWERS.

I AM inclined to think horticultural societies are the most to blame for whatever lack of taste exists in the arrangement of flowers, as in any schedule you will either find bouquets and table decorations entirely excluded, or such small prizes as 7s. 6d. or 15s. offered for a bridal or ball bouquet; rarely, if ever, does it exceed £1 for a stand of cut flowers, which to obtain a place must contain examples of the choicest flowers. Is it likely any gardener will cut his best flowers for the money, much less arrange them? Again, gardeners and nurserymen are often obliged to compete together, and what gardener is there that would exhibit if there was a chance of Cypher, Wills, Jones, or Hans Niemand competing against him?

There is often a complaint of the absence of novelty displayed in the decorations of the present time. It is suggested that tables for competition should be laid by the Society, the competitors engaging solely in the arrangement of the flowers. There is no doubt we should see more taste displayed by that plan, the exhibitor having more time and less anxiety.

Cut flowers are very attractive at exhibitions, for around them you will always find the greatest crowd, and in neglecting ample provision for the florist in the schedule the society does itself harm. Too much praise cannot be bestowed on the managers of such societies as make liberal provision for the decorator and bouquetist. I hope to hear more on this subject.—EXHIBITOR.

PLEIONE WALLICHIANA.—This is a lovely little Orchid. It is now flowering freely, and will continue so about two weeks. It is a deciduous Orchid, flowering after it has shed its leaves. The flowers are borne singly on a stem 4 to 5 inches in height; flowers rich rose in colour. Both this species and *P. maculata* are easily grown. Any

ordinary stove house would be suitable to grow them in. Many persons object to them because of absence of leaves at the time of flowering, but this is an evil easily remedied by arranging them amidst dwarf Ferns.—S. G.

A NEW TESTIMONIAL FOR THE EARTHWORM.

It had been already shown conclusively by several naturalists that the common earthworm is a creature which really renders services to horticulture that quite overbalance the small amount of damage it is occasionally guilty of. To the illustrious Dr. Darwin it has offered a subject that is particularly suited for his patient inquiry and shrewd observation, the results of which, embodied in his little work upon "Vegetable Mould and Earthworms," offer a final testimonial in behalf of a despised, or sometimes persecuted, annelid. The main facts, however, are new. We were aware that earthworms are of utility, because in the course of their life they consume decaying vegetable matter and convert it into humus or mould; also that by their burrows they help to bring about a wholesome drainage, preventing the surface becoming caked or hardened. Dr. Darwin, with an enthusiasm that we cannot wonder at, believes it is to the earthworm principally that the destiny has been assigned of renewing the face of the earth from year to year, and from age to age. In a single year, so he reckons, where the earthworms are in their average abundance, they deserve the credit of producing about ten tons of good mould upon an acre of land. This represents labour performed during only half the year, for earthworms do not generally busy themselves during the severe weather of winter; and of the ordinary day they devote the larger portion to repose, night being their time of activity. A scorching sun of all things they appear to dread, and in dampness they particularly luxuriate.

The earthworm, so this naturalist fancies, has its share of intelligence lodged somewhere, perhaps in the cerebral ganglia he has examined, for it constructs and lines its burrows in a very methodical way, shows also much judgment in the mode it adopts of drawing leaves into these according to their shape and size, and it has preferences for certain foods. They eat much, digesting what they swallow by the aid of a singular alkaline secretion, then ejecting the most of it for the benefit of the soil. Everyone is aware that stamping upon the ground makes the worms quit their holes, but, nevertheless, Dr. Darwin thinks they are deaf as well as blind, they are alarmed through the sense of touch. The popular belief that associates worms with the decomposition of dead bodies has nothing of fact to support it, their food being purely vegetable. "They remove decaying leaves, facilitate the germination of seeds and the growth of plants, and create for us most of our wide, level, turf-covered expanses."—C.

RESPONSIBILITY OF GARDENERS.

YOUR correspondent "SINGLE-HANDED" is quite correct in stating, on page 341, that plants are easier to cultivate when planted out than when grown in pots, but it does not follow that the reason he gives for plants in pots in a large garden mentioned not being so healthy as those planted out is the correct one. It would be quite as sensible a proposition to state that because the pot plants in many small gardens are not well grown, nor the gardening generally high class, that there is too much to do for one pair of hands; and that, therefore, the gardener who has a large place to superintend with a sufficient number of hands to carry out his orders can do the work in higher style. Some of the very best gardening is to be found in large gardens, the very worst in small ones. Selecting isolated instances is a loose manner of discussing a question. If it is granted, then, that the highest class gardening is to be found in large establishments, and that the average is higher in these than in small places, there is a reason different from that your correspondent finds. A gardener in a small place who passes everything through his own hands, if attentive to his work, must of necessity grow plants well. A gardener in a large place, as attentive to his work as the man in a small one, will be quite as successful and have much more to show for the labour he expends.

Personally I should find it much easier to do everything myself were I able to overtake the work than entrust it to subordinates, as I am obliged to do; but I do not imagine the work would be

any better done on the whole than it is at present. The task of superintending a number of men is very wearying and not so interesting as engaging in it oneself; nevertheless, it is the work which falls to gardeners in large gardens, and I think it is in that many gardeners fail who otherwise are quite competent. I make a point to show the workmen how I wish work done. I would as willingly take a shovel and show a young man how to stoke a boiler furnace, or the furnace of a flue, as I would show him how I require Grapes to be thinned. I have everything, to the planting of Cabbages, performed according to my own instructions; and although this requires much interference with the work, which I have no doubt young men often do not like as appearing to them only slight and trivial, it is upon doing these trivial matters well that all successful gardening depends. Had your correspondent's labourer been thoroughly drilled to the work the said poundsworth of Orchids would have been saved.—A MANY-HANDED GARDENER.

PLEIONES.

PLEIONES, or Indian Crocuses as they are sometimes termed, will very shortly assist in rendering the Orchid house gay. The three species that are most popular and the easiest to cultivate are *P. Wallichiana*, *P. lagenaria*, and *P. maculata*. They will have shed their foliage, and the flowers will have advanced, springing up as they do from the centre of the young growths. Pleiones are generally grown in shallow pans, and it is surprising how pretty those pans can be made to look with the assistance of a few seedling Ferns. I have practised this method for some seasons.



Fig. 64.—*Rondeletia anomala*. (See page 374.)

When the foliage has fallen from the pseudo-bulbs I collect some small seedling Ferns, such as *Adiantum cuneatum* and *Pteris serrulata*, and prick them in amongst the Pleiones, and in a few days the Ferns look quite fresh, provided they have been taken up carefully. After the Pleiones have flowered the Ferns can be removed. These small Ferns answer two purposes—first they conceal the material in which the Pleiones are grown, and secondly they show the flowers off to greater advantage. *P. Wallichiana* is the first of the three to flower; the flowers of this species are very pretty, but only second-rate compared with the two latter. The flowers are extremely useful in bouquet-making, and anyone that has visited the central avenue in Covent Garden about this time of the year could not fail to admire the way in which the charming little flowers are employed in making elegantly arranged bouquets. Like many other plants as well as

Orchids, Pleiones, through being deciduous, are often neglected to such an extent that satisfactory results are not obtained. The two chief requirements are encouragement during growth and a good season of rest without allowing the compost to become excessively dry. With judicious attention to these two matters I have never experienced any great difficulty in flowering them well. I think that the genus is one that will gain increasing popular favour as the merits of the plants become more widely known.—W. K.

NOTES AND GLEANINGS.

WE observe by our advertising columns that our old correspondent, Mr. ALEXANDER SHEARER, late of Yester Gardens, East Lothian, has commenced business as a landscape gardener in Edinburgh. We are glad to know that Mr. Shearer's great experience and well-known abilities are not to be lost to the horticultural community, and we wish him all the success he so justly merits. We hope our northern friends will profit by the opportunity they have of benefiting by Mr. Shearer's services.

— "A. W., *Lincoln*," writes—"I would remind any readers of the Journal who are troubled with WEEDY AND MOSSY WALKS, that nothing has come under my observation so effective for the destruction of weeds and moss as gas water. We give all our walks one application annually about this time through a fine-roscd watering can, taking care that none is spilt on the grass. Moss and weeds are destroyed instantly, and a weed on our walks is a rarity till the following autumn, when another dose speedily disposes of them. Worms, which are so troublesome about this time of the year on the verges of the grass, will not come near their old haunts for the rest of the season. Giving off such a powerful odour of ammonia, the gas water should be cautiously applied near to living-rooms."

— RELATIVE TO GRAPES AT THE EDINBURGH SHOW, our reporter writes as follows in reply to Mr. Simpson's letter on page 358—"I frankly apologise to Mr. Simpson for not having clearly stated that it was the Muscats which bore the marks of syringing. In other respects I have nothing to say different from what I have already stated. The faithfulness of the report remains notwithstanding that slip. As the Grapes lay on their boards at Edinburgh I reported on them, and no after-writing, either one way or the other, will alter their condition as seen at that time. I decline further to take the evidence of other Grapes sent to the office in Fleet Street as invalidating statements made on Grapes shown publicly a fortnight earlier."

— A GLOUCESTERSHIRE NOBLEMAN, owning large estates is making a novel EXPERIMENT TO RENDER LAND MORE REMUNERATIVE. He has planted thirteen acres with Gooseberry and Currant trees, eleven with Strawberry plants, and thirty-five acres with Plum trees, while a large portion of park and wood, of two hundred acres, have been converted into rabbit warrens, and surrounded with iron fencing. The erection of a jam factory is contemplated.

— AT the Essex Quarter Sessions, before Sir Henry Selwin-Ibbetson, a curious case was tried from Barking. Joseph Hale, William Preest, and Ruth Preest were charged with stealing 56 lbs. of Grapes, the property of George Phillips. Mr. Fulton, for the prosecution, said the law did not permit an indictment for stealing growing Grapes, and the Grapes in this case were cut from the Vine. The prisoners, however, were also charged with stealing the scissors with which they cut them. This charge was established, and Hale was sentenced to two months' and the two Preests to one month's imprisonment each. "In this case,"

remarks an evening contemporary, "ignorance of the law has helped to vindicate it; but as matters stand it would seem that rogues may cut as many Grapes as they please, if only they take the precaution to use their own scissors, or, at all events, not to take away those they borrow. The sooner the law is amended in this and similar points the better for the interests of justice. Why it should be a punishable offence to take a bunch of Grapes from a fruiterer's stall, and yet be no offence to take them from the hot-house in which they are grown, it would, we think, be rather difficult to explain."

— WE regret to announce the death of Mr. J. C. NIVEN, CURATOR OF THE HULL BOTANIC GARDEN, which occurred on the 16th inst. Mr. J. C. Niven was the son of Mr. Ninian Niven, for some years Curator of the Glasnevin Botanic Gardens, and was born at Dublin in 1828. He was educated for the medical profession, but disliking that he commenced a gardening career at the Belfast Botanic Garden in 1843. Thence he went to Dalkeith, and afterwards to the Royal Gardens, Kew, where he held a position of some importance. In 1853 Mr. Niven was by the influence of Sir William Hooker appointed Curator of the Hull Botanic Garden, which position he retained to his death. He paid much attention to herbaceous and alpine plants, and an extensive collection was formed under his care. Mr. Niven also delivered many courses of lectures upon botany in connection with several of the local scientific societies.

— THE following GARDENING APPOINTMENTS have been recently made—Mr. C. Slade, late gardener to A. B. Knight, Esq., Downton Castle, Ludlow, succeeds Mr. Hossack as gardener to the Marquis of Hertford, Ragley Hall, Alcester; Mr. Hossack succeeding Mr. Sutherland as gardener to Lord Lanerton, Castle Howard, York. Mr. J. Wilson, late gardener to R. W. Gaussen, Esq., Brookman's Park, Hatfield, has been appointed gardener to C. J. Nairn, Esq., Temple Guiting, Winchcombe. Mr. H. West, late gardener to H. Hoskier, Esq., Solna, Roehampton, succeeds Mr. Fairweather as gardener to Edmund Wright, Esq., Halston Hall, Oswestry; and Mr. A. Taylor, late gardener to Lord de Mawley, Langford House, Lechlade, has been appointed to succeed Mr. W. Patterson as gardener to J. Conyers, Esq., Castle-grove, Headingley, Leeds.

— AT a General Meeting of the FINSBURY PARK, HORNSEY, AND WOOD GREEN AMATEUR CHRYSANTHEMUM SOCIETY, held on Thursday, 6th October, 1881, a discussion took place as to whether an exhibition should be held this year, and a Committee was appointed, consisting of Messrs. Nobbs, Rundell, and the Secretary, to investigate and report generally on the Society's position. A special general meeting was held on Tuesday, 11th of October, 1881, to receive the Committee's report, of which the following is an extract:—"Your Committee have to report that after due deliberation they have reluctantly arrived at the conclusion that no exhibition should be held this year. The cost of printing, advertisements, &c., and other expenses attending an exhibition would exhaust the whole of the funds in the Treasurer's hands and leave a deficit, consequently the fund for prizes would be small and totally dependant on the sale of tickets and admission money; this would dissatisfy those gentlemen who might exhibit, and thus injure the Society. It is unlikely that members would care to press their friends to take tickets, knowing that the exhibition would not compare even with that of last year. For the reasons above stated your Committee therefore submit—1st, There be no exhibition for 1881, and that the funds, after payment of expenses, be carried forward to next year's account. 2nd, That to ensure a good exhibition for 1882 classes be opened for gentlemen's gardeners, with a good prize, and that this be announced as early as possible. 3rd, That the advertisements appearing in the Society's schedule for this year be renewed next

year free of expense. 4th, That the number of meetings be increased, so that the members may have more opportunities of discussing the objects of the Society. In conclusion your Committee express a hope that the next year's meetings will be more fully attended, and that the members will take greater interest in its objects, and endeavour to obtain growers, thus insuring the Society's success." The above was, after some discussion, adopted and ordered to be sent to members of the Society. Mr. W. E. Boyce, 14, Gloucester Road, Holloway, N., is the Hon. Sec.

WINTERING STRAWBERRIES IN POTS.

VARIOUS methods of preserving these from frosts are, according to circumstances, adopted, and no doubt in the majority of cases with satisfactory results. In the open ground healthy plants are seldom injured by severe frosts, but the best roots of those in pots are at the sides, and liable to be injured in the winter; or if they are not, the pots, owing to the expansion of soil when frosted, are liable to crack. This demonstrates the necessity of protecting, but not, however, of coddling. They are too often stored away in pits and frames, and rarely if ever watered till transferred to their fruiting quarters. At one time at least half the stocks of plants were wintered in a heated pit here, and but little further trouble taken with them. The consequence was a weakly start, then a bad outbreak of green fly, followed later on with a plentiful supply of red spider. This will not happen again. All that is really required is to protect the pots and roots from frosts, as rains will not hurt them. If well drained there is no fear of injury by excessive moisture, and dry at the roots the soil should never be. At the same time, if it can be avoided, I do not believe in subjecting them to extremes of any kind, and for this reason shall fill two rough shallow pits with leaves in which to plunge the Strawberries, covering them with large old lights when necessary. Had I not these old pits (which are, besides, extremely useful for forwarding vegetables in the spring) I should enclose an open dry space with boards, form a good clean bottom with ashes, and, as the Strawberries were stood in, work more ashes round the pots till the rims were nearly buried. The frost must be exceptionally severe if they are at all injured in such a position; but they can easily be protected with dry fern or litter when severe frosts are expected.—W. IGGULDEN.

A RUN TO THE WEST.

THE grand view from the terrace at Marston terminates in a range of tree-clad hills, the ridge resembling a rugged wall of foliage far as the eye can reach; but in it there is a distinct break as if a giant had hewed his way, like cutting through a hedge and leaving a sharply outlined gap. "Do you see that break in the trees?" asked Mr. Iggulden, pointing across the valley below us, and continuing, "that is Heaven's Gate where Bishop Ken composed the Morning Hymn; it is four or five miles distant, and there is something worth seeing below it buried between the hills." Driving from Marston by moonlight, about two miles through a park-like country, where ever and anon large trees cast their dense shadows across the road, with a fine expanse of well-timbered and undulated tract of pasturage on each hand, and still more shadows, something like a substance was seen ahead as if obstructing the road. Formidable the barrier looked under the deceptive light, but as we approached it the apparent difficulty, as difficulties often do when faced, began to vanish; the mass was found easily vulnerable, and we entered the domain of

LONGLEAT.

Passing through a portion of the well-kept woods we reach the park proper, in which a little further on the grand old mansion stands, a square massive pile, where it has stood for three centuries, and is apparently little the worse for wear. There are no palisades nor sunk fence, at the least on two sides of it, to separate it from the park, but all is open, grand, and free; a curving lake is near, and noble trees tower above and surround us. But we pass on through the avenue of stately Elms; the lamp of night is a magnifier of a scene like this, and we will see it on the morrow; to-night our quest is the gardener's cottage. We find it, a mile distant, a humble happy home.

"What!" is someone prompted to exclaim; "does a man so famed as Mr. Taylor is, the gardener at such a place as this, dwell in a humble cottage? We should have thought he had a handsome Gothic villa, or pretty mansionette." Stay; you do not quite know the man, though his writings tell plainly enough that he is no dandy, and he will not be ashamed that you should know his cottage is

an extremely humble one. He might have had a different dwelling, but he prefers his plain commodious and convenient home where his children were born and trained, and where, from the knoll on which it stands, he can look across a narrow paddock and see over the gardens, with the grand vinery which he created full in view.

The moonlight drive and the evening's chat are over, albeit the latter was a long one and pleasant. How often I have heard words to the following effect, and with which others of my readers are doubtless familiar. "Talk about 'women's tongues,' they are nowhere against gardeners' gossip. Once let two or three gardeners get fairly set to, and what with Grapes, Potatoes, plants, potting, pruning, pinching, stopping—their great results and small conveniences—they never know when to leave off; they will 'pinch' themselves of rest, 'stop' all night, and talk the best of 'talking women' to sleep." Never mind who is the author of that sentiment, it has a hundred authors probably, and I dare not say it does not contain truth; but it at least testifies to the existence of a great fact—the earnestness with which gardeners pursue their calling, their anxiety to learn all that is possible connected with their duties, and their willingness to impart of their knowledge to those to whom it may be of use. But for this devotion to their business, this friendly interchange of knowledge and recounting of experiences, British gardeners would never have attained to the position they occupy, not in this country alone, but abroad, where I know from some experience how highly they are estimated as cultivators and how greatly they are respected. Let us then endure the above reproach, or rather enjoy the compliment, and go on working by day, and talking and teaching by night; yet let not those who are absent from home forget there may be "somebody waiting."

But to resume. My night at Longleat ended. It is daylight now. We are in the garden, and having written a paragraph for gardeners' wives, hundreds of whom I know read gardening papers, I will endeavour to write something for gardeners, for I found, what Mr. Iggulden predicted, "something worth seeing."

It must be a plain matter-of-fact narrative, as anything having the semblance of undue praise would be decidedly obnoxious to the very practical gardener whose works I must notice. I will therefore tell the truth in soberness. First of all it is the simple truth to say that Mr. Taylor does all that he writes about, and more. Kitchen gardening, hardy fruit culture, Grape-production, Rose and Carnation culture, winter-flower growing, forcing in spring, and flower gardening in summer, are all done well. Everything, too, is done with an object. The wants of the family are known, and met in the best manner possible. No fancies are indulged in, nor space occupied uselessly. That which is serviceable is grown largely, that which is not of service is not attempted. Mr. Taylor has the reputation of being a good thrower-away. However great a reputation anything new may have, if it does not after a trial surpass the old it is promptly discarded. It does not suffice that it wins and even merits the approval of others, if it does not meet the requirements of Longleat away it goes. It will be readily understood that not many varieties of either plants, fruits or vegetables are grown. Many of a few is the governing principle, not a few of many. For instance, instead of growing a bushel each of forty varieties of Potatoes, he prefers having forty sacks of two varieties; instead of having forty rows of Peas all different, he prefers ten rows each of four proved varieties; instead of having a hundred Vines in the great vinery, as he easily might, and twenty varieties, he is content with just fourteen Vines and five varieties; instead of a "collection" of Zonal Pelargoniums for winter he only wants two varieties, one of which is fixed, the other not quite determined; instead of a dozen or more varieties of Carnations for winter to meet the great demand, he only has three sorts that he knows can be depended on. Such is the policy adopted, and who can say it is not a sensible one? It will be convenient and perhaps useful to refer as briefly as possible to the more prominent features and objects under separate heads.

THE KITCHEN GARDEN.

About five acres are enclosed, and it is difficult to find a rod of level ground; it is all hills and hollows, but apparently fertile, burnt clay and lime having been employed with great effect. Besides an early Potato the Scotch Champion is exclusively grown, and yields at the rate of 160 sacks, or 16 tons, per acre. Never have I seen the Champion so good as from this garden, the tubers being white, floury, and delicately flavoured. No other is desired in the Longleat dining-room. Besides its good cropping and disease-resisting character it is found to be the best weed-exterminating crop in existence. Mr. Taylor finds it a real twitch-killer, and employs it for reclaiming outlying neglected land matted with twitch or couch, and points to results with satisfaction. This is a new virtue of the Champion and worth recording. By growing the following Peas—William I., G. F. Wilson, Veitch's Perfection, and Ne Plus Ultra, superior produce is obtained as early and as late as possible, and no blank in the supply. Summer Spinach is grown for winter, indeed for all seasons, and so on throughout the routine: when the best of everything is found by trials, that is adhered to.

HARDY FRUIT.

Some deviations from the popular track are found here, but not without experience of other systems. Mr. Taylor has had the advantage of being trained under some of the most famed cultivators, and is practically acquainted with all methods of fruit-tree manage-

ment, and if he departs from either time-honoured practices on the one hand or fashionable modes on the other, it is not without good reason, as the results show. Being severely practical the great object in view is an abundant supply of fruit of the best quality and at the least cost. He has abandoned the plan of purchasing trained Peach trees and growing them on the good old fan-shaped system. He admits this system is good to a certain extent, but is well satisfied he has found a better. He now plants maiden trees, trims off the weak twiggy side growths, but does not shorten the leader. The trees are planted 4 feet apart, the leader trained upright, and the side branches herring-bone fashion. Every portion of a lofty wall was covered in less than four years, and the crops of fruit from base to summit are, so a first-rate judge tells me (not Mr. Taylor, though his word would have sufficed) remarkable. This is decided upon at Longleat as the best, cheapest, quickest, and most profitable mode of Peach culture for open walls. In reply to a question as to how long such trees would last, the answer was, "I don't know; but if they were worn out now (which they certainly are not) they have more than paid for the cost of purchase, space, and labour, and new trees can be bought for a trifle and prepared when these show signs of exhaustion." A north wall is covered in a very complete manner with Plums that afford valuable successional crops to trees on warmer aspects. There is no vacant space at the lower part of the wall, and to obviate this, the trees being fan-shaped, they have been planted closer than usual, yet "the lower branches will go some time; they always do," is the firmly expressed assertion of the cultivator.

Some Apple and Pear trees are grown as bushes but not pigmies; on the contrary, they are some 15 feet high and nearly as much in diameter and bear bushels of fruit; but for maintaining a large Apple supply orchard standards have a decided preference well planted and not pruned.

PEAR VERSUS QUINCE STOCK.

And now to Pears on walls. "JOHN BULL" (page 327) threw a bomb in the camp of the great Quince stock brigade, and no one need be surprised if it has a disturbing effect and the fire is returned. That bold individual has presumably not seen the cordons at Holme Lacy, Barham Court, and the young fruitful trees at Oldlands. It is fair to him, however, to state that he does not stand alone in his good opinion of the Pear stock. It so happens there are some Pear trees at Longleat that would gladden his eyes—a tree of Glou Morgeau especially that covers a length of more than 60 feet of wall, the branches being perfectly trained and wreathed with fine fruit from base to extremity. The produce of this tree must certainly be computed by bushels, but how many bushels I dare not guess; and the tree is not alone. Whether it is the example of these fine trees exclusively, or whether Mr. Taylor is in possession of other evidence that has impressed the value of the Pear stock on his mind, I know not; but the fact remains that in planting a new wall of Pears, or rather an old wall, with young trees two years ago he would not have one tree on the Quince. Some burnt clay and lime was worked in the soil of the border and the trees planted. "And what have they done?" may be asked. Truth compels the reply that they have done splendidly. "But when will they bear?" will be the natural retort. Some of them are bearing now, and all are forming fruit buds. "And what of the fruit?" I must record the simple fact and say that finer has seldom been seen. When I described the fine trees and wonderful fruit grown by that skilful cultivator Mr. Haycock I had no occasion to exaggerate, nor do I write incautiously now when I say I have never seen Bergamotte Esperen surpassed, if equalled, as now growing on Mr. Taylor's young trees on the Pear stock. The trees, however, would not have done equally well in all soils, and it will not be wise, satisfactory as their condition undoubtedly is, to regard them as affording conclusive evidence of the general superiority of the Pear over the Quince stock. I have done my duty by stating a fact and recording a caution, and there I leave the matter, which is evidently not yet fairly beyond the region of debate.

GOOSEBERRIES.

Gooseberries are about as much valued as Grapes at Longleat, and the "Gooseberry house" cannot be passed in silence. The border on the north side of a wall is planted with the bushes. A row of posts 8 feet apart and about 4 high are affixed next the wall, a strong batten running along the top of them, rafters resting on the top of the wall, and on these front posts, all firmly secured, form the skeleton of the house, which is covered—sides, ends, and top—with strong small-meshed galvanised netting. A door at each end next the wall affords access, and the trees can be attended to with comfort, and birds are completely baffled. The back wall is covered with Gooseberries, Currants, and Cherries, and a Plum is being trained up each rafter. Caterpillars are no longer a source of trouble, as they are easily subdued with Fir-tree oil. This insecticide, however, it may be said parenthetically, to be safe and effectual should be mixed with soft water. By the excellent plan just described an abundance of Gooseberries over a long season is maintained. Healthy young bushes are also grown in the open, and Mr. Taylor finds that, however virulently they are attacked by the caterpillars, if the bushes are removed to a distant part of the garden the pest does not follow them.

GLASS STRUCTURES.

Passing a long range of the olden time, in which old Vines, also Figs and Peaches, are grown and afford useful crops, we find three

ranges of very useful half-span structures, each upwards of 100 feet long and 18 wide. These are devoted to Cucumbers, Melons, Tomatoes, and the forcing generally of flowers, French Beans, and Strawberries. Cucumbers and Melons, like the Vines, are grown on the extension system. Two Melon plants fill a house, and continue growing and bearing the whole season. The standard variety is the Cashmere, of which Mr. Taylor had the honour of sending to Kensington last summer, what was pronounced by the Fruit Committee of the Royal Horticultural Society, the finest flavoured Melon of the year. Tomatoes are grown in boxes, stood on the floor and trained on the back wall, which is about 6 feet high. The variety is the Orangefield (true), which is esteemed the best of all in quality, and the plants are wonderfully productive. They are kept in bearing for two years, then thrown away and new ones raised from cuttings. A struggle has been going on with the Cucumber disease—that form attacking the fruit, and that it could not be conquered is proof of its virulent nature. The plants for winter are, however, looking admirably, the variety grown being the Baron Hill, which was raised by Mr. Gough, gardener, at Baron Hill, Anglesey, and is hardy, prolific, and good. In some of the houses a trellis runs from the floor to the apex of the roof, and there among other plants Bougainvillea glabra affords armfuls of flowers for months. Mr. Taylor points out there are two varieties of this—one having waved or slightly crimped foliage, the other having quite plain and smooth leaves; the former, he says, is the one to be grown, the latter being comparatively useless.

Strawberries are grown in large 32-size pots, in which they are layered from young plants. By this practice a gain of three weeks is claimed by the cultivator. I have seen quite fifty thousand Strawberries in pots this year, but those at Longleat are the finest. They are forced on the floor of the house and 5 to 7 feet from the glass, but the houses are very light.

Beans are grown in boxes or troughs, first on the sills, then on the floor. The boxes are filled with soil at once, and a row of Beans placed down the centre of each. Half filling pots and boxes, and earthing the plants afterwards, is regarded as quite useless work, inasmuch as no top-dressing induces the emission of roots from the stems. Fertilisers are employed for affording support, the plants are never stopped, and the variety is Osborn's Forcing.

A few kinds of plants only are grown, and those in large batches. As from thirty to forty button-hole bouquets are wanted daily during the duller part of winter, and these of fragrant flowers, provision has to be made for the supply. These "bouttonnières" are not the dainty gems the swells wear, but three large Carnations are required for each, and Tea Roses must be as large as Hybrid Perpetuals if possible.

TUBEROSES.

Hundreds of these are grown of extraordinary strength in a very simple manner. They are potted in spring in 6 and 7-inch pots, and placed on the floor of a vinery until growth commences; they are then plunged in a frame from which the lights are removed night and day through the summer, and are withdrawn as needed. The great secret of producing fine spikes and flowers is liquid manure, of which few plants can appropriate so much and give such quick and good returns. Stems are produced like walking-sticks, and flowers like Gardenias. This is a simple fact, and not a mere figurative expression.

CARNATIONS.

Nowhere that I am aware of are winter-flowering Carnations grown so fine as at Longleat. From four hundred to five hundred blooms are expected to be ready for the visit of the Prince and Princess of Wales in December. The three varieties relied on are Miss Jolliffe, flesh pink; Belle Rose, cerise (this is the favourite); and Purity, white. Strong healthy cuttings are struck about March, and the plants, as soon as ready, are placed in 9 and 10-inch pots, intermediate shiftings being eschewed. Great care in watering is exercised, and the plants receive the same general treatment as Chrysanthemums through the summer. They are never stopped. At the present they fill a division of the large vinery, the growths, strong and luxuriant, being sustained by twiggy sticks. They are wintered in one of the intermediate span-roof houses, and continue growing and flowering until the summer. Simpler their culture could not be, but skill is required in the conduct even of simplicities, and finer plants have seldom if ever been produced.

ROSES.

How Roses are struck in the summer has been clearly described by Mr. Taylor, and largely practised. Plenty of plants are seen at Longleat as the results of it. How they are struck in the autumn was described last week; the results of this simple method, which is the best for amateurs, would surprise the inexperienced. Rapidly vanishing space precludes a description of the rows of yearlings, and it must suffice to say that those who carry out the instructions on page 350 may have some similar next year; this will be better than reading about the successful results of other cultivators. Tea Roses for flowering at Christmas are in 12-inch pots, the plants are 4 feet high and pruned as closely as if they were Hybrid Perpetuals. "Should you not have more flowers by training down some of the strong young growths?" was asked. "Yes," was the reply; "but they would be smaller, and we want them as large as Paul Neyron

if possible." Mr. Hinton (of Rose election celebrity) told me, and he ought to know, that blooms of Catherine Mermet especially are grown large enough for the back row of any stand in any exhibition. Tea Roses are grown outside against the back walls of the houses, and their luxuriant growth and the thousands of fine blooms they produce tell as plainly as Roses can express themselves how they enjoy a cool moist shaded northern aspect.

Gardenias are grown in pots, and as there is no mealy bug at Longleat the free-flowering plants are enhanced in value and beauty. But I must stop. I fully intended saying all I had to say in this issue, but the place is too much for me. A few other things merit notice, also the grand vinery; and of this I may say as an appetiser that taking the house and Vines together, such a sight is not to be

seen in Great Britain, and, unless I am greatly mistaken, a similar example of Vine-growing has not been achieved in the period—eleven years—by any cultivator in the Queen's dominions.—J. W.

HONG KONG.

(Continued from page 316.)

HORTICULTURE, although it has accomplished a great deal, still cannot compare with English gardening. The nature of the soil is not by any means favourable to high-class gardening. Hong Kong is of igneous origin, and the soil is formed from very much decomposed syenite, containing but little humus. Gardening is

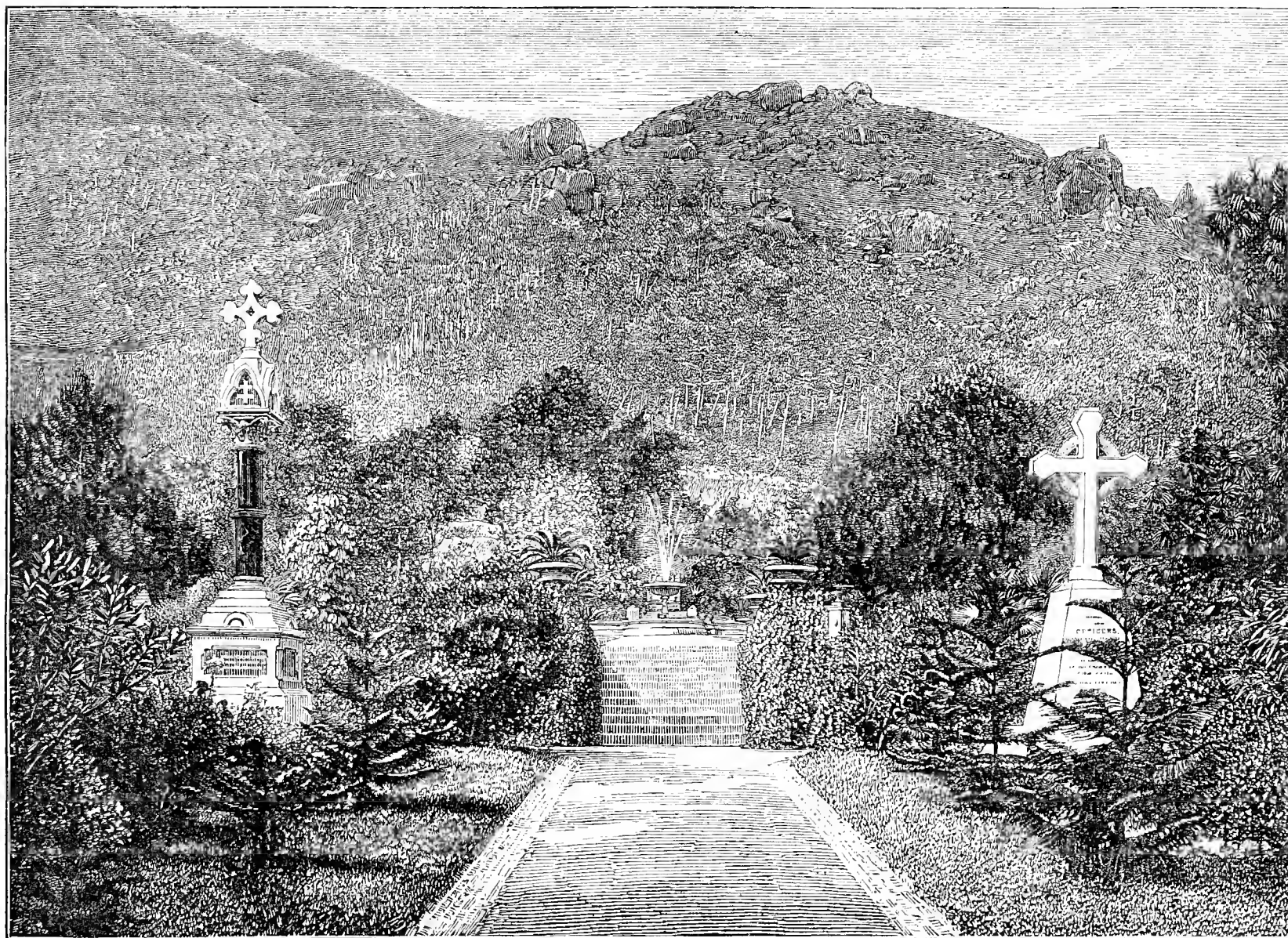


Fig. 65.—THE CEMETERY AT HONG KONG.

confined to small patches surrounding or near to the European houses, where some good vegetables are grown in the cool season, and where primitive dairies and poultry yards are maintained for the supply of the local market. Both eggs and fowls are very small as judged by the English standard, but they are tolerable. What, however, shall we say of the constitution of the Hong Kong cow? To judge by the milk which comes to table, either her solid flesh succumbs to the melting influences of the climate more easily than that of the foreigner, or else the place stands in sore need of an Adulteration Act. Plants in pots for the decoration of verandahs are in much demand, and where the employers look well after their Celestial gardeners the plants are pretty well grown. Where the gardens are of sufficient extent trees and shrubs give the most satisfaction, a great many varieties of which do very well and have a most attractive appearance. As an example of this we give the accompanying engraving, which represents one of the most picturesque portions of the cemetery.—A WANDERER.

ZYGOPETALUM MACKAYII.—This familiar Orchid is now rapidly coming into flower, and the plant is of easy cultivation. Its flowers

are most valuable for cut purposes, they last in good condition for some time after being cut. It will succeed in an ordinary stove house.—A SOUTHERN GARDENER.

POTATO CULTURE.

As the subject of successful Potato culture is a very important one, I trust that the following particulars may be of use to your readers.

I have always adopted the much-abused system of planting my Potatoes a yard from row to row, and 2 feet 6 inches to 3 feet from set to set, which is steadily resisted by those who do not try it. My garden is a light soil on gravel. The ground intended for Potatoes, in fact all the garden, is laid up in the ridge in the autumn, at which time the manure is applied. I have not applied manure heavily, say from twelve to twenty loads per acre, and I have grown Potatoes on the same land for the last fifteen years in alternate years. There is one thing about which I am very particular—that is, not to grow weeds. In the spring the ridges are raked and the sets dibbled in. I am very careful

to have the sets, either properly grown old tubers or the larger Potatoes, cut by a person who knows how they should be divided.

Adopting this system I generally grow from three to four bushels to the rod. Now for the results of this year's cultivation upon this system. Upon three rods of ground planted with Magnum Bonums (Suttons' seed) I have five bushels to the rod. I weighed the first root taken up, which produced seventeen Potatoes, weight $6\frac{1}{2}$ lbs.

Then I had twelve rods of Victoria Regents, of which three bushels and three pecks were grown to the rod. The only root which was weighed came to $6\frac{1}{2}$ lbs. A single tuber on another root weighed 1 lb. 2 ozs. If I had been aware of the quality and quantity my man was lifting I would have been very particular in ascertaining more about them.

Some may say, "It is all very well to give these results of Potato culture on a small scale, but you cannot do the same on a large breadth." I am ready to join issue upon this. I have planted a field of four acres this year cultivated upon the same system, but they have not yet been taken up. There is a good crop, but they are not what I could wish, as the land has only just come into my hand in a very foul state, and in consequence I could not get the Potatoes in until late in the spring, and then the land was in a very bad state for dibbling-in the sets; still I shall have as many as my neighbours if not more, and I only had to plant half the quantity of sets per acre—a very important item in the cost of production. I have also used Lawes' artificial manure instead of the costly process of carting London or other dung. The only drawback to Potato culture is disease. Even in this respect I have been very lucky. I do not always apply manure, but sometimes give a good dressing of lime. This year I have only about three bushels of Victoria Regents bad, and none of the Magnum Bonum. Last year, in a very poor stony soil without a very large quantity of manure, at a yard apart, I grew twenty-five bushels of the German Reds from a bushel and a half of sets without any small tubers amongst them.—GEO. BIDDLE, *Manor Office, Orsett, Essex.*

SCRAPS ABOUT FRUIT.

HAVING upwards of eighty acres of permanent orchards besides a large collection of young trees, I am very much interested in the culture of hardy fruits, and have been much pleased to read the varied experiences of your correspondents on this subject. I would, however, suggest that the information contained in their articles would be of much more practical utility if they in all cases named the district in which they reside. I find that many of the sorts they recommend are quite unsuited to our climate in Nottinghamshire; and if I now point out a few instances in which our experiences differ, I trust your correspondents will not imagine that I in any way call in question the soundness of their judgment. It is simply a matter of soil and climate. "A NORTHERN GARDENER" has hit on a rather ingenious idea as to the relative earliness of bearing in early and late season Apples, but I fear that our experience will point out as many exceptions as cases which prove his rule. The one which struck me first of all is Court Pendu Plat, or, as we call it in this district, Wollaton Pippin, a very late Apple, which bears most abundantly on the Paradise at three years old. New Hawthornden, which keeps till December or January; Sturmer Pippin, February to May; Northern Greening, April; New Northern Greening, Braddick's Nonpareil, December to March, are all examples of late-season Apples which bear early. On the other hand, Irish Peach, Red Astrachan, Mr. Gladstone, and Early Julien, all early-season Apples, do not with us bear freely as young trees. Newtown Pippin, mentioned by "ISLE OF WIGHT," requires a wall or orchard house here. Dutch Mignonne, as with your correspondent "R. P. B.," cracks here. Warner's King, said to keep till March, has only done so one season with us. It is usually over by November. It is none the less a valuable Apple. Manks Codlin, named as an early-bearing Apple, is perhaps more subject to American blight than any variety known, and Jolly Beggar is of very poor quality with us. Alexander, named as a market Apple, is grand when you can get it. With us it bears about once in four years; it has the great defect (in a market fruit) of weighing light. Fearn's Pippin is small for market, though a fair cropper. Doyenné Boussoch Pear is with us one of the very best orchard Pears. It has borne good crops every season for the last six years. In size and form it corresponds with your engraving, but the quality is not equal to that ascribed to specimens from a wall, being a little coarse and gritty; still it is by no means despicable. Reinette du Canada Apple, recommended for orchard in North Yorkshire, bears very badly with us.—A. H. PEARSON, *Chilwell, Notts.*

CARLISLE CODLIN APPLE.—This variety appears to be but

little grown, the compilers of trade catalogues generally ignoring it. Yet it is one of the best of culinary Apples. It is specially suited to small gardens, as it is not at all robust in habit, in this respect differing widely from Keswick Codlin. It invariably crops well, and is the first of any Apple fit for use. We commenced thinning the fruit for tarts early in August, and we have now a quantity of excellent fruit, which will keep till late in December. The fruit are scarcely so large as the Keswicks, but they are brighter in colour, heavier, and bake and boil beautifully. For Apple jelly they are preferred to Keswicks, the colour being superior.—W. IGGULDEN, *Marston.*

HUYSHE'S VICTORIA PEAR FOR PYRAMIDS.—We have been favoured with a good crop of this excellent Pear on a pyramid, and I have seen equally as good in gardens less suited to Pear culture than ours. It ripens at a time when good Pears are not very abundant—viz., in December and January.—SOMERSET.

DYMOND PEACH.—I am not at all surprised at the inquiry of "HAMPSHIRE CLERGYMAN" respecting the Dymond Peach. Some ten years ago I planted the following varieties—Early Alfred, Early York, Grosse Mignonne, Royal George, and Dymond (obtained from the nurseries of Messrs. Veitch, Chelsea) on a south wall. Of all the varieties enumerated above Dymond came into bearing first, and fine handsome fruit they were, not unlike Grosse Mignonne in appearance; and, though incredible it may sound, I gathered, during the five years I had charge of the trees, more fruit of the Dymond than from all the others combined. Some of the fruit figured successfully in the prize list at shows both in collections and single dishes. The chief characteristics of this variety are extreme hardiness, moderate but free growth, and its exceptionally free-setting propensities. The fruit usually ripens about the beginning of September. I may add that during the flowering period no other protection was given than a few spruce branches.—A. W., *Lincoln.*

THREE GOOD APPLES.—Galloway Pippin, Hambledon Deux Ans, and Dutch Mignonne, are worthy a place in every garden, the first-named growing to a large size. The first-named is good for dessert or kitchen use. With me it is somewhat a shy bearer. Hambledon Deux Ans is not quite so large, but a more showy fruit, the sunny side being prettily striped. It is an excellent keeper. I have kept fruits till July, and the tree is a good bearer; indeed, the one large tree here has not failed to carry a crop for the past six years. It is good for dessert and kitchen use. Dutch Mignonne is a smaller Apple, though none the less valuable, being good for all purposes. The few large well-shaped old trees here seldom fail to bring us some fine fruit. So pleased am I with these varieties that I have grafted from them on Crab stocks obtained from the immediate neighbourhood, my idea being that stocks would be likely to do better than if obtained from fresh soil. I also sowed some Apple pips last spring and have now thirty nice plants, some of which I shall graft, while a few I shall allow to bear, to prove the results from seed.—A. J. SANDERS, *Surrey.*

ECKLINVILLE SEEDLING AND COX'S POMONA APPLES.—"A COUNTRY SURGEON" says, "I intend ordering, among others, Ecklinville and Cox's Pomona Apples." I have them both, and find them, when compared with our standard varieties, wanting in size and productiveness, especially the former; they are also so mealy and dry and so soon decay that I would rather be without them. They may answer better on heavy clay soils; ours is light and poor.—J. TAYLOR, *Shrewsbury.*

TWO FIRST-RATE MELONS.—These are Victory of Bristol, scarlet flesh, and Hero of Lockinge, white flesh. The former was raised by Mr. Carmichael, and sent out by Mr. Turner of Slough. Fruit nearly round, above medium size, beautifully netted, and very handsome in appearance. Flesh bright scarlet, of good substance and excellent flavour. Plant of a strong hardy constitution, and free setter. Hero of Lockinge was raised by Mr. Atkins of Lockinge Gardens, and sent out by Messrs. Sutton & Sons, Reading. Fruit round, of a rich golden yellow colour, handsomely netted, and medium size. Flesh white, melting and delicious flavour. Plant vigorous and healthy, and sets its fruit freely. I have grown the above Melons both in houses and pits, and find them equally suitable for either purpose, and have the greatest confidence in recommending them.—T. LOCKIE, *Oakley Court, Windsor.*

BALDWIN APPLE.—This is a large, showy, free-bearing variety. As a pruned bush it has not failed to bear with me this last three

years. It, however, never finishes off to so handsome an appearance as those imported about Christmas time from America. As a culinary or dessert Apple to keep sound well till March or April it can be commended, and two or three trees in any collection of Apples cannot fail to give satisfaction. It forms natural fruit spurs freely. Has any correspondent fruited and ripened the Newtown Pippin satisfactorily in this country? and if so, under what conditions? In quality, as imported, it is first-rate, but it lacks the high colour of the Baldwin.—A. HARDING, *Peterborough*.

PEARS ON QUINCE.—On page 358 Mr. Robert Warner gives an instance in which Pears on the Quince stock turned out a failure on a stiff soil with a clay subsoil. My experience of the Quince as a stock for the Pear is on soil of a very different character—viz., a light, dry, sandy loam, with a subsoil of sand or porous gravel, underlaid at 2 to 4 feet from the surface by broken chalk and chalk flints. It is this, that if such a soil be enriched to about 18 inches in depth with any or all of the following materials—viz., clay, roadsilt, leaf mould, bog peat, sods of turf, and rotten stable or farmyard manure (by no means omitting one of these latter) Pears on Quince will succeed well, and may be kept in healthy and fruitful condition for an indefinite period by an annual mulch of the surface with a material which will add to the fertility of the soil, and at the same time tend to keep the root-run cool and moist in hot weather and warm in cold. A capital mulching material may be made by mixing stable or farmyard manure with any one or more of the following:—Spent tan, spent hops, cocoa-nut fibre refuse, leaves, hedge clippings, old weeds, and other rottable rubbish, grass cuttings from the lawn, and such like, letting them lie together in a heap for some time, and turning them over once or twice to mix and assist them to decay. A good way to apply the mulch is as follows:—Rake about 2 inches of the surface soil off from 2 to 5 feet all round the stem of the tree, according to the size and supposed extent of root-run, then throw about 2 inches thick of the mulching all over the uncovered space, after which the soil previously raked off may be thrown back again to cover up the mulching. February, March, or April is the time of year to perform this mulching operation.—J. E. EWING, *Eaton, Norwich*.

BEURRÉ DE L'ASSOMPTION PEAR.—I can confirm the experience of "LEADENHAM" with regard to this Pear. I had it when it first came over from France with a high reputation. It was recommended to me as a fine handsome Pear, ripening at the same time as Jargonelle. I have had it for seven years, and I have never gathered a fruit of it worth eating. I therefore subscribe myself—DISAPPOINTED.

BELGIAN CAMELLIAS.

THE Camellia is cultivated very successfully and in large quantities in Belgium, principally in and around Ghent. Only those who have been behind the scenes have any idea of the great number of Camellias which are exported thence annually. As an instance I may mention that in the wholesale catalogues published by the growers the price per thousand is given. It would no doubt be interesting to know the number sent out annually by each nurseryman, but a more important question to us is, whether the plants sent out are of good quality, and such as will give satisfaction to the cultivator.

After my own experience and the opinions I have gathered from others I certainly cannot give a verdict in favour of imported Camellias. Everyone knows that the great fault found with them is that they lose their buds. I named this fact to the representative of a great Belgian nurseryman. He attributed it to the treatment the plants received here, saying that plants which had been for the summer months in the open air were certain to suffer when brought into a greenhouse, allowed very little air, stinted for water, and "coddled." I carefully noted the advice he gave me, and when I received fifty plants from Belgium last year I resolved to follow it carefully. As the plants arrived early in the season they were allowed for a while to stand outside, and every care was taken that they had a sufficient supply of water. When the cold weather came on they were removed to an airy conservatory, syringed frequently, and allowed abundance of air during mild weather. When the plants arrived they were set with an abundance of buds, and at the proper season the superfluous buds were removed in the usual manner. For a while the plants succeeded admirably, the foliage being a good colour, and the buds everything that could be desired; but when the trying weather of last December and January came about 75 per cent. of the buds fell. I had sent several plants to

a friend, a most successful gardener, but his success was no better than my own. In the same house in each case other Camellias were grown which developed their buds and produced an average quantity of blooms. I am afraid, therefore, that I must conclude that amateurs purchasing Belgian Camellias must be prepared for disappointment the first year.

The question now arises as to whether these effects are merely the results of change of climate, &c., or whether the method of culture adopted in Belgium is unsound. Most certainly at the outset appearances are against the grower. We find the plant crammed into a misshapen flower pot much too small and very badly drained, while the compost used is simply leaf soil and sand. An intelligent gardener whose opinion I asked on this matter tells me that such a compost is exhausted too soon. A compost for Camellias should have lasting qualities, as the plant has to grow in it for a considerable period. The general opinion among small growers here is, that the Camellia which is so healthy and full of vigour when it leaves the nursery at Ghent, loses much of its vigour for the first season here. It would be almost too severe to say that the plants are grown to succeed up to a certain point, in other words "grown to sell." It is said that there is a scarcity of really good loam and peat at Ghent, and for that reason mainly the plants are grown in leaf soil. Considering the great numbers grown for the English market, it would certainly not be unreasonable for us to expect the growers to go to a little extra trouble and expense to procure suitable potting material.

When the plants had finished blooming last season and were beginning to grow they were potted. The pots we found in all cases badly drained, and in some we found no drainage at all, some of the pots, in fact, being waterlogged. Considering that the plants came from one of the best and largest growers in Ghent this was very reprehensible; it is only, however, one of the faults into which wholesale manufacturers of plants fall. A considerable quantity of the old material was shaken away, and the plants were placed in pots a size larger, the compost used having for its basis good fibrous loam, a little peat and sand being added. To induce growth the syringe was used freely, and the plants are now healthy and vigorous and fairly well set with buds.

My advice to amateurs is to purchase English-grown Camellias, for though they may cost a little more they are grown on sound principles, and are more certain to give satisfaction. Many thousands of Camellias (small plants which are not budded) are purchased by English nurserymen to be grown a season or two here. Such plants, having formed buds in our own climate, are quite as safe to buy as those grafted in our nurseries.

The foreman in a large English establishment tells me that he never puts his plants outside, the house is shaded a little, plenty of air is admitted day and night, the syringe is freely used, and the whole arrangement produces most satisfactory results.—VINCE.

THEORIES IN GRAPE CULTURE.

PROBABLY no subject connected with horticulture proves more generally interesting than Grape culture, and a properly conducted discussion of the merits of any particular theories or practices is certain to be instructive to many readers of the Journal. It is my intention to comment on some of these theories, and for my own benefit as well as others, trust I shall be successful in eliciting opinions upon the subject. That the list of contributors to this Journal includes many experienced Grape-growers we are constantly receiving ample proof, and if my ideas are in opposition to theirs I am open to and invite correction. It must be understood I have not referred to any back numbers, and do not allude to any particular person's theories, but merely comment upon what I have generally noted.

At present I will confine myself to the practice of encouraging young Vines to make as much top-growth as possible under the circumstances for the first few years, say till they are in full bearing—the aim being to fill the borders with active roots—supposing this to be of inestimable value to the Vines. This has long been believed in and practised by several successful Grape-growers with whom I am personally acquainted, the results apparently justifying its adoption. I should be sorry to be thought bigoted; at the same time I say "apparently," being under the impression that the practice is not so sound as it appears, and much may be said against it. Take as an example, and what may be commonly met with, especially in some districts, a house of Vines planted during the early part of the year. An expensive border is made, as much pains being taken with the composts as a cook takes with the ingredients of plum pudding, the Vines are planted, and encouraged to grow as freely as possible. This may be all well and good, but why induce the formation of a thicket

of growth all over the house, including the back walls? We, of course, all know it is done with the idea of filling the border with roots in proportion to the top growth, and in this success is almost certain. But, I argue, what is the use of encouraging all this growth of roots—roots of the grossest kind, and which quickly rob the borders of much of their fertility—when the whole, or, at all events nearly the whole, of the top growth at pruning time is cut away? Do all those roots maintain their vitality? and if they do, would not one-third of the number meet all the requirements of the Vines? Unless I am much mistaken, a great per-centage of the roots perish during the winter; and if they do not, they at all events remain inactive in the spring, simply because there is insufficient top growth to set them in motion.

In a little scientific work at hand we are told, "The roots (not Vine roots in particular) extend themselves in all directions beneath the soil in search of food they require, and chiefly by means of their extremities imbibe water containing mineral substances in solution. By means of the trunk and branches, but chiefly through their external layers, called alburnum or sapwood, this crude sap is transmitted to the leaves, in the cells of which it is destined to undergo a great change." Prior to that it is stated, "The bark consists of a somewhat similar arrangement of tubes to that of the wood, by which the elaborated juices called the true sap are conveyed from the leaves back to the branches, trunk, and roots, by which their volume is enlarged, or, in other words, by which the growth of the plant or tree is effected." I might quote further to prove the necessity of reciprocal action on the part of the leaves and roots; but from the foregoing it is evident if it requires a houseful of top growth to fill a border with roots, it requires equally as much foliage to restart the same, and this, if realised at all, is not till late in the season. If the Vines invariably started well the second or third season, and in addition perfected comparatively heavy crops, I might consider science at fault; but according to my experience they do not always start evenly and well, neither is it safe to crop heavily in the case of young permanent Vines. The very fact of undue encouragement of laterals also sometimes results in the canes swelling to such an extent as to loosen the footstalks of the primary leaves, which are thus liable to fall before performing their functions—viz., perfecting the buds, the consequence being an uneven break the next season. A newly planted Vine with ordinarily fair treatment will form roots and sap in sufficient quantities to meet all its requirements at the commencement of the next season's growth, and, unless unduly forced, the root-action will recommence and continue in proportion to the top growth—in this case not half in vain. To be plain, the roots will be "extending in all directions in search of food" when the said food is most required, and will not therefore impoverish the border in order to perfect growth destined to be burnt.

Were I to plant a house with Vines next season I should employ newly struck Vines, these being previously shifted from the small pots in which they were rooted into 9-inch pots, and planted when the roots were reaching the sides of the pots. The balls of soil should remain intact, care being taken to have them in a moist state when planted, and to keep them so till long after the roots had spread into the borders. But few roots would be twisted, and even if there were many it would not much matter, as well-tended Vines invariably produce many of their best roots from near the base of the stems during any season, but especially during the second year. Vines thus planted and grown steadily will form canes of the best description, the laterals being stopped at the second or third joint, and again when they meet on the trellises; in the case of any weakly starters, stopping these when about 4 feet in length in order to strengthen the stems, and allowing the remainder to grow unchecked till about two-thirds up the roof, then stopping. Supernumeraries would be stopped when about 8 feet in length, and would not be shortened the next season, when they would perfect a valuable crop; the permanent Vines to be cut back to near the commencement of the trellis, afterwards receiving the same treatment as in the first year, with the exception of being allowed to grow to a greater length. The next season these would be shortened to about one-third of the length of the roof, and a fair crop taken, and so on, the canes ultimately attaining their intended length the fourth season. I am quite aware there is nothing original in my practice, and I am equally aware there are many, if they would only take the trouble to write as much, who have most successfully practised it.

When strong "cut-backs" are planted they are apt to make a very vigorous start, especially if well rooted, and this also occurs if hard pruning is resorted to in the case of those grown unrestricted the first season—too strong, in fact; the result, in some instances, being a pithy growth, the reverse of what should occur,

especially if the Vines are to remain in a good bearing state for an unlimited time. If it can be proved by adopting the above practice of rapidly filling the borders with roots much heavier crops in a given number of years can be safely secured than by the method briefly advocated by me, I will readily admit I am wrong. At present I fail to see the utility of allowing so much unrestricted growth, which I might mention is persisted in by some, though in a lesser degree, even when the rods are in full bearing.—W. IGGULDEN.

THE ROSE ELECTION—SCRUTINY OF RETURNS.

ONE of the electors, who had kept no record of his votes, requested me to return his paper that he might examine how far his opinion agreed with the general result. As there are possibly some others who would also desire to compare their ideas with those of the great body of electors, I now present our readers with the full result of this scrutiny. It will be seen that the nearest to naming the actual best forty-eight has been reached by one of the Honorary Secretaries of the National Rose Society and Mr. J. Sargeant, these two electors having marked forty out of the forty-eight aggregate selection, and the number gradually lessens until twenty only are named. Here, too, is a curious thing to note—that seven nurserymen out of twenty-two voters, more than one-third, name thirty-one of the forty-eight; but not a single amateur out of forty-five is with them. On the other hand, of those eight who name thirty-two, only one is a nurseryman.

The following is the complete list—Messrs. Mawley and Sargeant name 40; Messrs. Burrell, Soames, Curtis & Co., and Cant, 39; Messrs. Whitwell, Jackson, and Merryweather, 38; Messrs. Mount, Tomlinson, Brown, and Davison, 37; Messrs. Baker, Waterlow, Williams, Cranston, and Farren, 36; Miss Penrice, Messrs. Choyce, Cheales, Grant, and Keynes & Co., 35; Miss Bulmer, Messrs. Biron, Burnside, Laxton, Pochin, Sladden, D'Ombraim, Wakeley, Wilkins, Hinton, Coolin, and Dickson, 34; Messrs. Hayward, Fewkes, Bulmer, Frettingham, Rumsey, and Treseder, 33; Messrs. Fuller, Watson, Evans, Hall, Humphries, Tranter, Pemberton, and Mitchell, 32; Messrs. Mack & Son, Mattock, Prince, Banyard, Laing, Piper, and Durbin, 31; Messrs. Smith, Slaughter, Gravely, Griffith, and Francis & Co., 30; Messrs. Mayo, Mitchell, and Pawle, 29; Messrs. Jefferies, 28; Mr. Grubb, 27; and Mr. Gale, 20.

Of the Roses that received but a solitary vote five were mentioned by one amateur, four by one of the nurserymen, three by one in each of the two divisions of voters, two by three amateurs and four nurserymen, whilst the single mention of the remainder is formed of seventeen amateurs and nine nurserymen.—JOSEPH HIXON, *Warminster*.

INTERNATIONAL POTATO EXHIBITION.

REPORT ON SEEDLINGS, 1881.

MR. SHIRLEY HIBBERD has further obliged us with the following complete list of the seedling Potatoes certificated at the recent Exhibition. The whole of the seedlings that were entered for competition at the Exhibition held on September 20th and 21st have been carefully examined, and their merits decided on, so far as they can be judged by the samples sent, and irrespective of cropping and keeping qualities. It will be seen that very few have been selected as possessing high quality, but it is proper to remark that with very few exceptions fair average quality prevailed amongst the samples, some two or three only of the whole number proving decidedly objectionable, and these may prove good in another season. A considerable proportion of the sorts submitted were neither named nor described. The regulations require "origin and parentage to be fully stated if possible." In many cases no doubt the origin and parentage of genuine seedlings may be quite unknown to the raisers, but the judges are bound to consider this point, and they will of necessity hesitate to give certificates to sorts that strongly resemble known varieties, and that are sent without any particulars whatever. It must be understood that none are disqualified, and none are condemned. Those not now deemed worthy of a certificate may prove so hereafter, for sorts vary with seasons, and several that have been passed by were nearly good enough for a first place.

CLASS Q—SEEDLING WHITE KIDNEY NOT IN COMMERCE.

Ross's Magnet, W.K.—Raised by Mr. Ross of Newbury, from American Excelsior. In size medium to large; oval or elliptical and flattish. Skin a little rough, brownish white with suffusion of pale purple, which deepens at the heel end. Flesh yellowish, of the finest quality, and most elegant appearance. First prize and first class certificate.

Kentish Invicta, W.K.—From Messrs. Lott & Hart of Faversham. It is of Magnum Bonum type, but more handsome and of higher quality in every way. Medium to large, oval or elliptic, rounded at

the ends. Eyes with broad arches, and clustered, with a stain of purple at the nose end. The origin of this variety cannot be definitely stated, as it was selected from a number of self-sown seedlings on ground that had carried crops of Snowflake and Beauty of Hebron. It is believed to be the result of a natural cross of these two varieties, but in its more characteristic features it comes nearest to Mammoth Pearl. Flesh white, very mealy, and of the finest texture and flavour. First-class certificate.

Myatt's Seedling from Prolific Ashleaf, W.K.—Raised by F. & C. Myatt, Offenham, Evesham. Very neat, flattish celt-shaped; sometimes with sharp nose. Skin smooth, tawny, with purple stains, which at the heel end darken into slaty purple. Flesh yellowish, dry, mealy, elegant, and of the finest flavour. First-class certificate.

CLASS R.—SEEDLING COLOURED KIDNEY NOT IN COMMERCE.
No award.

CLASS S.—SEEDLING WHITE ROUND NOT IN COMMERCE.

Fenn's No. 3, W. R.—Medium to large, roundish or pebble-shaped, very neat. Skin tawny, smooth; eyes few and quite level with the surface. Flesh white, in texture and flavour extra good. First prize and first-class certificate.

Fenn's Lady Truscott, W. R.—Medium or smallish, very neat, spherical, much netted, tawny white; eyes few and inconspicuous. Flesh white, fine in texture, firm, flavour delicate. A very fine table Potato. First-class certificate.

Fenn's No 1 x 3, W. R.—Described as a late main crop variety, raised from Snowflake crossed with an unnamed seedling. It is of medium size, round, a little flattened and angular. Skin tawny white and rough. Flesh white, very fine in texture and flavour. An elegant and acceptable table variety. First-class certificate.

The foregoing three varieties were raised by Mr. Robert Fenn of Sulhampstead, near Reading.

Myatt's Seedling from Fluke, W. R.—Raised by F. & C. Myatt, Offenham, Evesham. It may be likened to King of Potatoes in general form, and probably will supply long and short tubers. It is of medium size, flattish, a little rough, tawny, with faint wash of red; eyes few and inconspicuous. Flesh yellowish, soft, mealy, of the finest flavour. First-class certificate.

CLASS T.—SEEDLING COLOURED ROUND NOT IN COMMERCE.
No award.

HARDY HEATHS AND THEIR PROPAGATION.

THE beauty of these plants is beyond dispute, and they deserve to be more largely planted. They are at home on the rockery, and some varieties would be invaluable for this position in the spring months. For planting round Rhododendron, Azalea, or beds of Kalmias they are well suited, and they grow luxuriantly in soil where American plants flourish well. For the spring garden they are delightful, and one of the most conspicuous borders I have seen was principally formed of hardy Heaths mixed with *Euonymus radicans variegatus*. However beautiful and attractive they appear when used on the rockery or planted round beds, their real beauty is not half displayed to advantage in either of these systems. To show them to the greatest advantage they should be grouped or massed together, each variety in quantity. When in flower their colour is soft and subdued, which could not render them objectionable. What could look more beautiful than a good groundwork of Heaths in flower with some noble or choice Conifers springing out of it—on long drives, especially, when much of cutting has been required in levelling to make the road, and in consequence slopes sharply on each side? I remember a drive being made in the north of England which had to be excavated for fully half its length. The rock that was removed from the more hilly portions of the ground was employed in suitable places, projecting well out on each side, which extended almost to the gravel. At short distances and between the projecting rocks was suitable semicircular nooks, in which Heaths were freely employed. Ivy and Cotoneaster were also largely used, and rising amongst them were Conifers, Hollies, and other trees. This is a free system of planting, and when well grown and established the plants have a natural appearance. Nothing could have been more pleasing than the different Heaths when in flower, and no other style of planting could have shown them to better effect. When established they will grow well in any ordinary soil, and only require cutting with a pair of shears after flowering to keep them from becoming loose and straggling.

Propagation is effected by means of cuttings and layers; the former generally is practised, and cuttings would root readily if inserted at once and properly attended to. In the first place, a number of 8-inch pots should be prepared by being more than half filled with drainage. Over these should be placed a little moss or rough peat, the remaining portion of the pot being filled to within half an inch of the top with fine sandy peat. This should be pressed firm into the pots, and the remainder filled with clean silver sand. The portions of wood taken for the cuttings

should be the tops of the shoots, about 1½ to 2 inches in length. It is wise to insert them before the wood becomes too ripened. The cuttings must be carefully dressed, the end being cut clean with a sharp knife, and the small foliage is readily removed with a pair of propagating or Grape scissors, and the work can be done more quickly than with a knife. The cuttings should be inserted at once, commencing in the middle of the pot with the largest, allowing them to gradually slope to the sides of the pot. It is surprising what care is taken in some nurseries to insert them neatly. They are not crammed in as is often the case in private gardens. The last row round the pot should be so arranged as to leave room for the bellglasses, which must be placed over them at once after a good watering has been given with a fine-rose pot or the syringe. Glazed boxes or a cold frame should be in readiness for them, where they can remain until severe weather commences. If the sun proves strong they must be shaded. This is all the attention they need except opening the frame once a week, or fortnightly, according to the state of the weather, to gently dew the plants. The soil must never become dry.

At the approach of frosty weather the pots may be plunged in cocoa-nut fibre or any other suitable material, and the frame well protected with mats to exclude frost. Fire heat should be avoided as much as possible, only resorting to it when other means are likely to fail. I do not think any harm would result if they became slightly frozen, but it is best to avoid this if possible. Water must be carefully and judiciously applied during the winter. As spring approaches they again require care in shading. It will not be necessary to lift the bellglasses very frequently; if the glasses and pots are well syringed sufficient will drain in round the edges to keep them moist. When growth commences the plants commence rooting, and some free varieties, such as *E. mediterranea*, will make much greater progress than others.

After the young plants have attained this stage the glasses must be tilted to admit a little air, or the plants are liable to draw up weakly. No air will be needed on the frame in which they are plunged until well rooted, when the glasses may be removed, and a little air afterwards given to the frame by degrees until the plants are well hardened for planting out, which will be about the month of June.

When the plants are well rooted and are growing their points should be taken out to cause them to produce three or four shoots. The young plants are too small to be placed in outside quarters, and should be planted under glazed boxes or frames as recommended for the Conifer cuttings. The ground on which they are to be planted should be well forked, and a small trench made and filled with peat and coarse red or river sand mixed together. The sandy peat should be placed round the roots, and the plants placed about 2 inches apart each way. After giving water the frames must be kept close until roots are again produced. They must be shaded for a time until the plants are established, when they can be hardened and the frames removed. The only attention then is watering during the remainder of the season. It will be too late to pinch out the points of the shoots, as growth might be produced only to be injured by the frost. The majority of the kinds will require more room in spring, and can be planted out 6 to 8 inches apart, where they can remain until large enough for permanent positions. The plants should be cut in slightly every season, by which means bushy plants are produced.

The *Menziesias*, or Irish Heath, are propagated in the same way. The varieties of *Ledums* require the same treatment, root readily, and make better plants when raised from cuttings than if they are obtained by layering.—WM. BARDNEY.

FRUIT TREES CANKERING AND BEARING.

THE short hurried article by "A NORTHERN GARDENER" in this week's Journal is welcome as an introductory lesson on the subject of my letter in the Journal of 13th October; but I wish to point out the following specific points of interest for his and other competent hands to deal with.

The time for planting is just upon us; the bearing qualities and sizes and properties of most good sorts of Apples and Pears are pretty generally known. Now we need these leading kinds of both fruits categorically dealt with in the following respects.

1st, In how many years (about) after planting, say two-year-old standard trees, will each sort come into fair bearing?

2nd, Specify which of the kinds as dealt with is much liable to canker, little liable to canker, or quite free from tendency to canker.

The question as to the causes and cure for canker so far as it can be practically dealt with may be entered into more leisurely

afterwards, and on these points much of an instructive character can be said, as I before remarked.

I had, perhaps, best, to make my meaning clearer, illustrate the kind of information which I think is much needed.

On my soil, which is heavy loam, lies high, but has a gentle slope to the north-east—a cold backward soil in short—Williams' Bon Chrétien Pear as standards fruited pretty freely five years after planting, and are not at all affected by canker. This may also be said of Pitmaston Duchess, also as standards. Marie Louise as pyramids on Quince, double-grafted, canker badly, and have never fruited in the same time. Louise Bonne fruited freely on Quince in four years, but cankers badly, continued transplanting being necessary to keep them tolerably free. Kerry Pippin Apple fruited freely in three years and does not canker, Emperor Alexander ditto; whilst Cox's Orange Pippin, Ribston Pippin, Northern Spy, and many other first-class kinds canker to death, and therefore cannot fruit at all. All these are on the same soil and aspect, and have the same frost, &c., to contend with.—S. S.

EARLY fruitfulness among Pears and Apples is a pretty sure indication of a subsequent abundance. That tendency to develop fruit buds while the trees are quite young, for which some varieties are remarkable, frequently occurs irrespective of stocks, and some care is required to guard against an undue strain upon the health of a young tree from overcropping. While gladly complying with the request of "S. S." on page 332 for information upon this subject, I by no means intend to infer that precocious fruit-bearers should be planted to the exclusion of all others, for many of our best sorts come slowly into bearing, but there should be enough of them in every garden to afford a supply of fruit as soon as possible after the planting.

Of such among Apples I can recommend Margil, Cox's Orange Pippin, Cellini, Duchess of Oldenburgh, Borovitski, Keswick Codlin, Hawthornden, New Hawthornden, Manks Codlin, Kerry Pippin, Warner's King, Small's Admirable, Golden Pippin, Adams' Pearmain, Pomme d'Api. Of Pears, Fondante d'Automne, Williams' Bon Chrétien, Huyshe's Victoria, Comte de Flandre, Doyenné Defais, Red Doyenné, Urbaniste, Comte de Lamy, Desiré Cornelis, Beurré Clairgeau, Winter Nelis, Dana's Hovey, Bergamotte Esperen, Madame Millet, and Doyenné d'Été.

Many of the trees here have suffered badly from canker induced by the thin poor soil. This has been clearly proved, because the trees in the kitchen garden where the soil has been deepened and enriched have no canker; but in an orchard, where nothing has been done to improve the soil since the trees were planted, canker has killed some of the trees and disfigured and crippled many others. The Apples killed are Lord Suffield, Nelson Codlin, Hawthornden, Alfriston, and Kerry Pippin, and those which have suffered badly to the extent of losing branches are Court Pendu Plat, Keddlestone Pippin, Old Nonpareil, Mère de Ménage, Bedfordshire Foundling, Manks Codlin, Fearn's Pippin, New Hawthornden, Ribston Pippin, Cox's Pomona, Cellini, Striped Befing, and Pomme d'Api.

But there are several sorts which have passed unscathed through this trying ordeal, and are fine flourishing fruitful trees. This immunity from canker cannot be the result of accident in any instance, for there are two trees of each kind planted side by side, so that the test has been a fair and reliable one. Tower of Glammis, King of Pippins, Golden Noble, Court of Wick, Hanwell Souring, Northern Spy, Cobham, Warner's King, Hambledon Deux Ans, Yorkshire Greening, Duchess of Oldenburgh, Keswick Codlin, Blenheim Pippin, Small's Admirable, Dumelow's Seedling, Gooseberry, Rymcr, Brabant Bellefleur, Barcelona Pearmain, Bess Pool, Ashmead's Kernel, Lodgmore Nonpareil, Mannington's Pearmain, have all stood the test well, and there are certainly enough of them to afford a tolerably fair selection of early, mid-season, and late sorts for culinary purposes.

Pears were not planted so extensively in this orchard. Citron des Carmes, Jargonelle, and Swan's Egg have died of canker; both the trees of Hacon's Incomparable are also dying, one of Suffolk Thorn is dead, while the other is only slightly affected and has borne some good fruit. Winter Nelis, Louise Bonne of Jersey, Doyenné Gris, Catillac, Beurré d'Amanlis, and Marie Louise d'Uccle have also suffered badly. Elton is only slightly affected, and Spanish Bon Chrétien, Black Worcester, Knight's Monarch, Fondante de Malines, Eyewood, Beurré Bosc, Duchesse d'Angoulême, Uvedale's St. Germain, Althorpe Crassane, Forelle, Bishop's Thumb, and Beurré Leon Leclerc, are quite healthy.

Most of the choice kinds of Pears and Apples were not planted in this orchard, and so I am unable to say anything about them in connection with canker. I may, however, state that an espalier of Golden Reinette, despite the advantage of the rich soil

of the kitchen garden, has suffered very much from canker, and is all the more remarkable from the healthy condition of all the other numerous garden trees.—EDWARD LUCKHURST.

AUTUMN-BLOOMING ROSES.

WE are growing fully one hundred varieties of Roses here, but out of that number not more than a dozen have yielded really good late blooms. Of these the best were Dr. Andry and Bessie Johnson, which in both instances were in every respect perfect. The former is a bright crimson red, and the latter blush white. Comtesse d'Oxford on its own roots has been good, and still more useful were a number of dwarf plants of Souvenir de la Malmaison, but the blooms in this case were not of good form. Cheshunt Hybrid, Charles Lefebvre, Duke of Edinburgh, Jules Margottin, La France, Ferdinand de Lesseps, Général Jacqueminot, and Mrs. Baker were all giving blooms till quite recently, and where sheltered may yet perfect a few more.—SOMERSET.

INFLUENCE OF STOCK ON SCION.

WE send you a small box containing three examples of Beurré Diel Pear grown as a standard here, and also four examples of another Pear which appears to us very much to illustrate the influence of a stock upon a scion. The latter have been gathered also from a standard tree in the garden here, which has borne good crops of similar fruit now for many years. The tree had a label formerly—"Beurré Diel grafted on Jargonelle. J. B., sen." As our late principal died more than twelve years ago this grafting must have taken place at least two or three years earlier, and the tree has had a sufficiently lengthened period to fix its true character. To us it appears a fixed sport of a very excellent type, and we shall be glad to learn if a similar instance has come under your notice. Whilst a good deal of the form of the Beurré Diel is preserved there is some tendency to an elongation of shape in the direction of the Jargonelle; there is also an approach to the colour of Jargonelle. But the great departure from Beurré Diel is in the season of ripening and in the quality. Whilst Beurré Diel is still hard and uneatable our "sport" is fully ripe—perhaps rather passing, if anything; and whilst Beurré Diel only occasionally ripens in this district satisfactorily on a standard the "sport" is always satisfactory, and may be truly called melting, buttery, and delicious, and entirely free from grittiness. For our northern districts it appears to be a Pear of considerable value.—JAS. BACKHOUSE & SON, York.

[This is clearly a case of the stock exercising a very decided influence on the graft. The two fruits sent by Messrs. Backhouse are perfectly distinct, not only in shape but in quality. The specimens of Beurré Diel are excellent illustrations of that variety—so much so as to be typical; and those produced by the scion grafted on the Jargonelle are so distinct as to have all the character of another variety. The true Beurré Diel is now quite unripe, and has no appearance of being ripe for many weeks hence; but the others are over-ripe and in some cases are quite decayed from the core to the circumference, as in the case of the Jargonelle. This is a convincing proof of the influence which the stock exercises on the scion; and the question arises, Why does not this occur more frequently, and what can be the relative conditions which exist to render such a thing possible? We have recorded many singular instances of this transfusion of essences, if it may so be called, in the pages of this Journal—some through the influence of the pollen of one tree on the ovary of another, and thereby altering the whole condition of the fruit—but we have never before witnessed so remarkable an instance of transfusion from the stock acting so strongly on the scion in the case of fruit trees.—ED.]

NOTES ON POTATOES IN LINCOLNSHIRE.

THOUSANDS of acres of Potatoes are grown in this county, and I venture to send a few notes respecting them. The disease is not nearly so virulent this year as has been the case for several seasons, yet I have seen no varieties free from it with the exception of Magnum Bonum. Scotch Champion is affected this year quite as much as is Paterson's Victoria. In addition I may safely say that the yield of the Champion is not so good as that of the Victoria, and the quality is not nearly so good. Last year Champions were far ahead in productiveness, hence great breadths were planted this year, which are proving disappointing to many. White Rocks, as they are named here, are yielding immense crops of good quality, whilst last season they were miserable both as to yield and quality. Magnum Bonum is a great cropper, and this season they are fairly good in quality; but no Potato, so far as I

have seen, is in advance of Paterson's Victoria. The Schoolmaster is a good cropper and excellent in quality, and is only very slightly affected with the disease.—MID-LINCOLN.



KITCHEN GARDEN.

THE recent frosts are a sure indication of the weather that may now be expected, and will act as a warning not to delay any precautionary measures in protecting or lifting those plants requiring it. Lifting Lettuce and Endive should be attended to, as the plants be kept from frost, for when the midribs become frozen the quality is much deteriorated. Where heated pits are not at command a good supply may be maintained by lifting the plants and packing them in soil in pits or frames, or a late Peach house, where with ventilation in mild weather and attention to protection the plants will remain in good condition a long time. Complete the taking-up of Carrots, Salsafy, Scorzonera, and a portion of Parsnips for immediate use, the main supply being left in the ground, or where this will interfere with the preparation for other crops the roots may be lifted and placed below the surface of the soil in a cool and shaded place and covered with litter. This is a good plan to adopt with Beet to preserve them in a fresh solid state until next year's supply is fit for use. In storing roots avoid placing them in large stacks, or they will decay. Examine late-sown Turnips, and those fit for use should be taken up and stored, which will benefit the remainder of the crop.

On a dry day take up Cauliflowers and stow them away in a pit or other sheltered place where protection can be given. Complete pricking out Cauliflower plants from the seed beds into handlights or frames, some of the plants being placed at the base of a south wall, which in an ordinary season withstand frost, and are useful for spring planting. Complete planting out Lettuce, Endive, and Cabbage as soon as possible, and guard against the ravages of slugs by occasional dustings with quicklime, soot, or dry wood ashes. Earth up late crops of Celery when the weather is suitable, giving a final earthing to such as require it. Clear off the haulms of Asparagus when they die, giving a dressing of well-decomposed manure after clearing the surface of weeds, and cover with soil from the alleys. The decayed leaves of Seakale may be removed and the crowns covered with a little spent tan, sawdust, or cocoa-nut refuse; that required for forcing should be taken up and placed where it can be easily obtained when required.

Frame Ground.—Fully expose Cauliflowers, Lettuces, Endive, and Radishes in frames whilst the weather is mild, employing the covers or lights only in case of frost. Stir the soil lightly about the plants, and remove decayed leaves as fast as they appear from Cauliflower and Lettuce plants, keeping a sharp look-out for slugs.

FRUIT HOUSES.

Peaches and Nectarines.—The earliest trees, as well as those ripening fruit early in June, have shed their leaves, and should be finally pruned—a very trifling affair if former instructions have been attended to. Complete also cleansing the trees and houses. The lights should be placed on the earliest house, and air admitted fully for the present. They may remain off the second house if the weather continue mild for another month. See that the inside borders of these houses do not become dry, and if there be any appearance of dryness afford a thorough supply of water. Succession and late trees are late in casting the leaves, probably owing to the dull weather in August and September; but the buds are well developed, and the wood is ripening well though slowly. Where it is well ripened the heat, if it has been employed to assist this, must be discontinued. On no account must the ripening of the foliage be accelerated by a dry condition at the roots, for although that would cause the foliage to ripen early it would prevent the plumping of the buds, and they would fall later on through their defective development. At no time ought the soil to become very dry, and though a lessened supply of water is needed

when the growth is ripening and the trees at rest, it is essential that the soil be constantly moist.

Figs.—Trees in pots intended to be forced early, if they have been placed out of doors to harden, must, if not already done, be taken under cover to keep them from the cold autumn rains. Attending to thinning the shoots or top-dressing the surface soil must not longer be delayed, so as to have the plants ready for forcing in November. Preparation of leaves and litter for making fermenting beds for trees to be forced early in pots must also be commenced. Late trees permanently planted out will now be shedding their leaves, and the houses will need closing in wet weather, giving, however, abundant ventilation on all favourable occasions. Although the Fig will endure a drier condition of the soil when at rest than most other fruit trees, it should not be allowed to become so dry as to have an injurious effect upon the roots.

FLOWER GARDEN.

The mixed border is the most suitable position for many bulbous plants, as they are not disturbed, and can ripen their growth without becoming unsightly. Lilliums appear to much advantage, especially where backed up with dwarf evergreens, which also afford shelter from winds. The Lilies should be planted about 6 inches deep and surrounded with sand. The bulbous Irises also are beautiful, and should now be planted; also Hyacinths, Narcissuses, Anemones, and hardy bulbs generally, surrounding each with a little sand. Gladioli having ripened their growth sufficiently should be lifted, and are best wintered in not too dry a place, or they will shrivel and lose strength. Complete making beds of Pinks and Carnations, planting in a good dressing of soot and lime. Plant Pansies and Violas at once for spring and early summer flowering, also other border plants raised from seed as well as those from cuttings, which if planted early have a chance of becoming established before winter. Early autumn is the best time for examining herbaceous borders, and if any of the strong plants have outgrown the space allotted to them they should be reduced. To grow herbaceous plants well good soil and liberal cultivation are necessary, and where any have been long on the same ground removal and replanting will be beneficial, the ground being deeply trenched, working in plenty of thoroughly decomposed manure; by doing this early in the season the plants have time to become re-established before winter.

PLANT HOUSES.

Greenhouse.—Herbaceous Calceolarias now require potting singly, 3-inch pots being large enough, employing a compost of good fibrous loam, a fifth of leaf soil, and a similar quantity of well-decayed manure and a little sand, placing near the glass in a pit where they will be safe from frost. Should any aphides exist dip the plants in tobacco water previous to potting. Transfer the second batch of Cinerarias into the full size pots, and keep them in a light position where they will be safe from frost. Soil as advised for Calceolarias will suit them. Seedlings or suckers in small pots for late flowering should be potted, which will carry them on until January or February, when they should be again potted. Chrysanthemums must be placed out of danger of frost, and where there is no suitable house a canvas-covered framework may be employed for a portion of the plants in the southern parts of the country, but glass is absolutely necessary in the northern districts. Those required for late flowering in a house with a north aspect, in which they will move slowly and come into flower at Christmas.

Azaleas.—Some of the earliest-flowering plants—such as A. Borsig, Narcissiflora, Raphael, alba, Fielder's White, amœna, and its larger form, amœna Caldwelli—will now, if they were well managed after flowering, be in a condition to place in heat. A temperature of 55° will be sufficient, as when they come in without excitement in a high temperature the flowers are more lasting. A. vittata elegans flowers naturally in autumn, especially when subjected to a temperature of 50° to 55°, the flowers being finer and more freely produced than in an ordinary greenhouse temperature. This, though an old plant, is not so frequently met with as it deserves, and, flowering over several weeks during the winter, is very useful for cutting, its white-striped flowers—some spotted, and others entirely purple—lasting long in

water. The general stock if infested with thrips should be washed with tobacco water.

Bulbs.—Another batch of Hyacinths, Narcissus, Tulips, &c., should be potted for successional flowering and plunged in ashes for a month or six weeks, or until they have filled the pots with roots. The earliest of these are well rooted, and may be transferred to other quarters before they have made much top growth, and this must be kept from strong light, gradually inuring them to it by covering each with an inverted flower pot. The first batch of Roman Hyacinths, Paper White, and Double Roman Narcissus are coming into bloom. The batch potted early in September will be in a condition to succeed the first, and should be brought forward in a temperature of about 50°, and by keeping a portion in an ordinary greenhouse temperature they will come naturally into flower in December. Those for later flowering should be kept cool, frost only being excluded.

THE BEE-KEEPER.

MR. PETTIGREW AND THE BEE TENT.

I TRUST Mr. Pettigrew's denunciation of the bee tent on page 366 will not be allowed to pass without one or two gentle protests.

First, the great sacrifice of lives spoken of is not manifest, as the bees return to their queen, and the stocks are then returned to their owners or sold. Where the weather is hot, and during a honey glut, combs will fall where due precaution is not taken in the packing. But this is before they arrive at the bee tent.

The objection that the operations of the bee tent have a frightening effect on the bystanders is somewhat ludicrous. Here and there, doubtless, is a man who objects to the bee tent in the same way that one or two peculiar individuals object to have their children vaccinated; but any man endeavouring to prove from the latter instance alone that the Vaccination Act is a mistake, would be looked on with some curiosity. It is equally futile to demonstrate from one or two isolated opinions that the bee tent is detrimental to apiculture, while the hundreds who learn, and practise what they learn, prove the exact opposite now daily.

If I described the Manchester Bee Exhibition as "not up to much" because one friend of mine who went said it was "on the one-stringed fiddle pattern," I should not carry much weight with Mr. Pettigrew. Of course that friend might be a lunatic, which for argument's sake I will allow, but that does not affect the logic of the case.—H. V. EDWARDS, *Oakbrook*.

CONTRACTING HIVES FOR WINTER.

IN bee-keeping, as in other pursuits, one is apt to follow habits that have no merit but their antiquity, and no reason but that they are recommended by book-makers. We are therefore all the better for a veteran driver like Mr. A. Pettigrew checking the rein and calling on us to reconsider our course; and I trust he may follow up the plan by laying his finger on one point after another in the practice of bee-keeping, whether of ancient or modern usage, and let us have its "reason" fairly discussed.

On page 321 Mr. Pettigrew invites discussion as to the healthfulness or helpfulness of the practice of contracting hives for winter. As I have widely recommended the practice, and have full faith in it myself, I beg to submit my reasons for so doing.

In the first place, however, I may state that I have no doubt as to the good results your correspondent has always had with stocks whose combs did not fill their hives. Mr. Pettigrew is no ordinary bee-keeper, and his stocks are no ordinary stocks. His locality and climate are likewise more favourable for wintering than those of Scotland and other parts of Britain. Stocks well cared for, and whose normal populations are doubled by the addition of driven bees in autumn, will winter under almost any circumstances, and to such the vacancy in the hive may be a positive benefit. I have seen some good results in the same line. I once visited the apiary of Mr. Kerr of Mintlaw, in the far north of Aberdeenshire. I found his row of skeps by the north side of a high wall, all well thatched to below their floor-boards, and all doorways closed entirely. This was of course in winter. I found it was his practice to remove his stocks to this location early in October, and return them to the sunny side in March. Thus for five months they remained closed, practically in the dark, and unvisited by a single direct ray from the sun. To my surprise Mr. Kerr informed me that on examining them in March he

usually found very few dead bees and the combs were dry and clean. "And that without ventilation?" I dubiously inquired. "Oh, no," said he; "I put under each stock a small eke of about 2 inches in depth, and raise it from the floor-board an eighth of an inch by wedging in a few small nails." I was no longer doubtful. The position of the hives, their dry dark coverings, and the presence of that ventilating eke explained all. The best conditions for successful wintering were here attained, if we except the closing of the doorway, which seems unnecessary. The temperature of the air immediately surrounding the bees must have been almost uniform throughout the long steady Aberdeenshire winter, and its condition at once dry and pure. The case is almost on a par with cellar-wintering, the most successful of American methods. Why not advise its general adoption? Because so few bee-keepers have the choice of a situation so well sheltered from sunshine, a climate so uniform, stocks so uniformly strong, and maybe the thrifty care exhibited by this bee-keeper of the far north. What succeeded so well with him, and perhaps also with Mr. Pettigrew, would certainly fail in most other hands. As soon would I think of calling on all bee-keepers to follow the example of Mr. Langstroth, who once wintered a stock in good condition by suspending it in the air without a floor-board at all, while other stocks carefully protected perished. No; we believe in the principle of giving bees a chamber proportioned to their number, have had uniform success with it even in the case of very weak stocks, and know of no objection that can possibly be urged against it. If Mr. Pettigrew knows of any let us have them by all means, and thus get both sides of the question. I submit the following reasons for recommending the general contraction of hives in winter.

1, Because it is the only method of wintering that can be recommended for universal adoption, being suited alike to strong and weak stocks, and to localities and climates varying from mild to severe. I should not fear, granted a supply of food, to winter a strong swarm in any locality within these shores, even without combs at all. Strong stocks can scarcely be chilled to death, but weak ones frequently perish from cold. And even if not altogether lost, how frequently do we find seams of bees cut off from the cluster by the contraction of the latter during severe weather and chilled to death. By contracting the hive in proportion to the cluster we bring their food within easy reach; ensure against death by freezing, and by conserving the heat we winter our stock at a less expense in stores and bee life and energy.

2, Because combs not fairly covered with bees are frequently badly moulded in winter, owing to the condensation of the vapours exhaled by the bees. Especially is this the case with exposed pollen. By removing these and storing them in a dry place we preserve them uninjured; also in the event of an attack of so-called dysentery all the combs left in the hive are badly soiled, a trouble almost unknown in well-packed hives.

3, Because of the prospective advantages of a contracted brood nest in spring. In a confined space brood-rearing goes on at a more rapid rate; and under the valuable operation of "spreading the brood" by the restoration of the removed combs, one at a time as the bees are able to cover them, we hasten the swarming season by several weeks at least.

I know of no objections whatever to the plan, unless it be by way of a caution as to the *modus operandi*. If the hive be contracted and packed too early in the season, the comfortable heat of the hive induces the bees to fly more frequently, and the population is often greatly reduced before winter sets in. As autumn advances one comb only should be removed at a time, as it is found to be free from bees and wholly or nearly cleared of honey. At the same time the contracting board should be brought forward, but no packing of chaff or other material should be used till frosty weather sets in.

During the last severe winter in America probably three-fourths of the stocks in the Northern States perished. The returns since published show that the loss was pretty well distributed, all sorts of hives and systems of wintering sharing in the disaster. But one remarkable circumstance comes to light, and one which is sorely puzzling the wisest heads among the bee-keepers—viz., that not merely a few, but a large proportion of stocks wintered in exposed box hives with an open hole in the crown-board covered only with an empty box, and also in bar-frame hives from which the unfinished supers had never been removed, wintered successfully. Doubtless many will claim this fact as an argument against contracting and packing hives. But I venture to give another explanation. The fulness of ventilation in the hives in question kept their bees cool and at home during the autumn months, and they entered the winter stronger in bees than other hives. The bees were thus their own protection—better than chaff, cork dust, or even dead air. That is no reason, however, why we

should adopt such a slipshod method of wintering. If we carry out the contracting plan as I have indicated, we can ensure even weak stocks a safe passage through the winter.

When on a visit to Ireland in November, 1879, I packed two stocks that had each not over half a pint of bees. They were nestled in chaff with only a few bits of comb, and both lived and worked during the following spring till their queens were required elsewhere. Unfortunately there are too many weak stocks this season, unexampled in my experience for the rapidity with which the bees have dwindled since honey-gathering ceased. The early cessation of breeding, the efforts at stimulation by necessary or unnecessary feeding, the neighbourhood of groceries, confectionery works, or cider mills, and other causes, have all worked to this result. For my part I shall join no stocks together so long as I find them able to cover even three Woodbury frames by the 1st November. Such stocks carefully packed about this date often come out as strong as others, more promising, and, though only expected to winter some good spare queens which are valuable in spring, they well repay the little extra trouble they involve.—WM. RAITT, *Blairgowrie*.



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (J. F.).—We know the publication to which you refer, and do not entertain such a high opinion of its value as you appear to have; and we do not suppose that a translation of it would meet with anything like a ready sale in this country.

Nitrate of Potash (A. Correspondent).—The substance referred to is no doubt nitrate of potash, or saltpetre, as it is more commonly termed.

Salisburia adiantifolia (Lillian).—The above is the name of the tree, leaves of which you have sent. It is commonly called the Maidenhair Tree, from the resemblance of its leaves to the pinnules of Adiantums. It is the Ginkgo Tree of the Chinese. It is hardy and ornamental, and we think should be more freely planted in pleasure grounds.

Greenhouse Rhododendrons (C. P. L.).—The propagation, grafting, and culture of these excellent greenhouse shrubs are described in an article by Mr. Bardney on page 242, the issue of September 15th, of the present volume.

Ornamental Grass (F. W.).—*Stipa elegantissima* is a perennial, and will grow again next year if the plants raised from seed have not been crowded too closely together, in which case they not unfrequently decay. Unless the plants have space to develop in the summer they cannot be expected to survive the winter; indeed, the autumn rains often destroy them.

Fyrus japonica (T. W. N.).—The fruit is edible, but it is a question entirely of taste as to whether it is palatable. We do not like it, but we have not tried it in Apple tarts. You might make the experiment and favour us with the results.

Sach's Botany (J. W. D.).—The book you refer to is published by Macmillan & Co., 29 and 30, Bedford Street, Covent Garden, from whom you can obtain particulars as to the price. The English edition is entitled "A Text Book of Botany Morphological and Physiological," translated by A. W. Bennett, M.A., and W. T. Thiselton Dyer, M.A. It is of large 8vo. size, and contains 558 pages. It is an elaborate work, and much valued by botanists.

Chrysanthemum Shows (J. T.).—The principal Exhibitions to be held next month are the following—Richmond (Surrey), November 10th; Kingston-on-Thames and Royal Aquarium, Westminster, November 17th; and Birmingham, November 23rd and 24th. The cut blooms are generally a speciality at Kingston and the Aquarium, and the specimen plants at Birmingham.

Cordon Trees for Wall (Ignoramus).—All the Pears you name will succeed on a wall having a west or east aspect in Kent, as also will many others; but as you do not indicate the number you need we presume those named in your letter are sufficient. If, however, you require a greater number we will readily publish a selection on hearing how many varieties you desire to plant.

Tomatoes (H. T. H.).—Your letter shall be forwarded to our correspondent, who will perhaps be able to furnish you with the information you need. As you esteem Tomatoes of good quality so highly we advise you to adopt the plan of Mr. William Taylor at Longleat—that is, when you find one that gives you satisfaction preserve it, and propagate from cuttings until you find another variety superior.

White Clematis (A. Constant Reader).—We do not know of a variety that answers precisely to your description. Miss Bateman is one of the best white

varieties, but the flowers are larger than those of *C. Jackmani*. *Patens floribunda* has smaller flowers, its colour being French white. *C. montana* has small star-shaped flowers borne in clusters. It, however, does not belong to the *C. Jackmanni* type, but is a distinct species.

Stephanotis at Christmas (Anxious).—As you evidently have a healthy plant and free-flowering variety you may probably induce it to continue flowering until Christmas, but much will depend on the weather, especially the absence of fogs. You cannot do better than continue the present temperature, which is evidently suitable, judging by the healthy foliage and fine flowers you have sent. In the absence of sun the day temperature should be about 5° higher than that maintained at night.

Quinces Cracking (F. H.).—When a period of hot weather prevails in the summer, as was the case in July, the tissues of the fruit dry up and much of the elasticity of the skin is lost; and then in the autumn, when rain occurs, the great abundance of sap exerts such a pressure on the fruit that it splits, as in the specimen you have sent to us.

Tree Fern too Tall (Rosa).—You do not say whether the Fern is planted out or growing in a tub, and the "branches" to which you allude are, we presume, the fronds. If the Fern is in a tub it may be sunk as deep as you require, or the ground will allow, at the present time; if it is planted out it would be preferably removed and placed lower in the spring just as the new fronds are beginning to grow, a number of the old fronds being removed either now or as spring approaches. The old soil will probably need excavating and fresh compost adding, and the work of taking up and replanting must be done carefully and well. We should not cover the stem with a great thickness of soil, but leave it free, the soil being prevented from pressing against it by a wall of bricks or stones. We have known Tree Ferns cut off level with the soil, or where required, and the trunk planted in suitable soil, and the growth has been satisfactory; but they have received the skilful attention of practised cultivators.

Gathering Fruit (J. E.).—When the fruits part readily from the tree—that is, when they fall into the hand when gently raised—they are ready for gathering, and if they were not gathered they would be blown down by the first brisk wind. Fruits often shrivel after gathering by being stored in a too warm and dry place. We have often found them to keep better in a cool, dark, and rather damp cellar than in a light, warm, and very dry fruit room, and we have not unfrequently found stray fruits that had been left for weeks hidden amongst the grass in an orchard quite firm and sound, when others from the same tree were more or less shrivelled in a dry and too warm room.

Tropæolum speciosum (A. B.).—You are in error. You have not obtained "bulbs" of this species for the sufficient reason that it is not a bulbous plant; it does not even produce tubers, but is herbaceous, with fleshy roots, like Musk. The plant you have secured is possibly *T. tuberosum*; if so, and the soil is fertile and well drained, it is not needful to take up the tubers. The plants will probably grow better next year. If they do not, and you will inform us of the correct name of your plant, and describe the soil and position in which you are endeavouring to grow it, we will endeavour to aid you in your object. There are other tuberous species besides the one we have named, but *T. speciosum* is certainly not one of them.

Fuel for Furnaces (Kittie).—The remarks have the same force whether applied to steam coal or ordinary house coal. The question of economy in heating is very much a question of supply of material. In some districts coal is cheaper than coke, in others coke is cheaper than coal. If you can obtain both at a moderate cost we should mix small coal with coke—this is assuming the furnaces have a good draught. We know of instances where even the draught is so sluggish that good coal must be used to supply the requisite heat, one in particular where a nobleman makes his own coke, yet for one of his garden furnaces coal is an absolute necessity. If your furnaces have a good draught, then small coal and coke will be sufficient and more economical than the practice to which you refer.

Ash Trees not Growing (Planter).—On soil such as you describe Ash trees do not start freely, but when once established they often grow fairly well. Still, the soil is fully too strong for this tree, and Sycamore would no doubt grow better and be more profitable, there being a great demand for its wood for laundry utensils of all kinds. Further, your young Ashes may have been stunted and hidebound, and in this state they never grow freely. We assume the trees have been planted two years, and are thus in a measure established. In this case your best plan will be to cut them down almost close to the ground, and the probability is they will push fresh growths; and if one is retained on each tree, the others being removed, you may yet form a good plantation. We have seen this practice adopted extensively and with excellent results. The best time for cutting down the trees is in spring after the shooting season is over. When young Ash trees are stubborn and hidebound they will stand still, or nearly so, for years in whatever soil the trees are planted.

Carnations in Pots Failing (C. E.).—The first essential for success is healthy cuttings, sturdy and strong. With weakly cuttings or growths from unhealthy plants it is almost impossible to produce satisfactory results. The next point is to allow no check to the plants in their early stages of growth, and especially must care be taken that they are not permitted to be rootbound in small pots before they are shifted into larger. The want of timely potting results in many failures. The pots you have employed are much too small for growing such strong-growing sorts satisfactorily. The plants ought to be shifted, always before the roots are matted, into 8 or 9-inch pots, or even larger, and be grown in frames during the early part of the season, and afterwards in the open air, great care being exercised in watering them. If the plants must be grown in small pots liquid manure is essential after the pots are filled with roots. But whatever system of culture is adopted good plants cannot be produced from bad cuttings.

Violets in Frames (A. Very Old Subscriber).—Violets to flower freely in frames during the winter are prepared by planting small divisions or rooted suckers in April a foot apart in rich soil and a suitable position, watering them as required during the summer to ensure fine plants, and shortening the runners of those that need it, keeping the beds free from weeds. In September or early October the plants are taken up carefully and planted in frames that have until then been devoted to Melons or Cucumbers; or a gentle hotbed is made of leaves chiefly, and about 3 feet high. This is covered with a good soil about 9 inches thick and made rather firm for the plants. They are well watered immediately after planting, and carefully afterwards. The frame is kept rather close for a few days, and then judiciously ventilated according to the weather, all decaying leaves being promptly removed. The plants so treated become established by the winter and flower freely. The sides of the frame are protected with manure in severe weather, and the glass covered with mats and straw. If Violets are planted in beds of convenient size, and frames are placed over them, the plants flower freely. If your plants are so arranged that frames can be placed over

them you would probably have better results than lifting the plants; but if they must be lifted and transplanted the work should be done at once, planting them so that the leaves of one plant nearly but not quite touch those of the others.

The Spindle Tree (*H. P. D.*).—The specimen submitted to us is a small branch of the common Spindle Tree (*Euonymus europæus*), so called from its wood being used long ago for making spindles. It is called Prick-wood and Prick-timber, from being used for toothpicks and skewers. The wood is said to be used by musical instrument makers. For skewers and toothpicks the wood should be cut when the shrub is in bloom, for then it is tough and not easily broken; it is also used by watchmakers for cleaning watches. The berries act as an emetic and purgative, and are fatal to sheep; and when powdered and sprinkled on the hair destroy pediculi; sometimes it is made into an ointment for the same purpose. No animals except the goat will browse upon the plant.

Violets in Greenhouse (*C. Diamond*).—Violets will succeed on the shelf of a light greenhouse in the winter provided the house is not too warm. But your description of a house "heated three times a week" is much too indefinite for us to understand its temperature, and if the system is adhered to through the winter few greenhouse plants can be expected to survive, or at least remain healthy. We can understand furnaces being "heated three times a week" for household purposes and ovens for baking, but the method as applied to heating a greenhouse is quite new to us. Violets should be potted in a compost of two-thirds of rather strong turfy loam and one-third of leaf soil or old decayed manure.

Storing Ice (*Mrs. S. Fairburn*).—As you have not an ice house you may preserve ice in stacks. A correspondent has described the following method which he has carried out successfully for a number of years. "After getting the ice in proper working order, and the weather continuing frosty, we begin to take it off the pond and cart it home to the stack, which is built on level ground, but has the advantage of being shaded by trees and bushes from the strong sunshine. We begin the stack by emptying the carts on its foundation; after which there are plenty of hands ready to begin pounding the ice with light wooden mallets sufficiently small to pack all large pieces firmly, thereby excluding from the interior of the stack as much air as possible; this should rather be a little over than under done. The people on the stack pound away till the whole is finished, and as the ice draws towards a point, one or two drop off as the room for working becomes less, and begin breaking the ice at the bottom before throwing it up to those who remain. As the work proceeds we now and then throw a quantity of water over all, so as quickly to congeal the whole into a solid mass. We stack in this way from 100 to 110 cartloads every year, and it keeps perfectly well over twelve months, sometimes for a longer period, and we have to open the stack nearly every day during summer. Before covering-up, if the weather will allow us, we leave the stack exposed at least twenty-four hours to the frost; if otherwise, we cover it at once. For covering we use dry wheat straw; covering to the depth of 48 inches at least, and all put on at once. We leave no air-pipe through it, and we have no trouble in consequence of its heating or fermenting. We leave the whole in a conical shape, neatly strapped down to carry off the rain. This may be thought a waste of straw by some, but no less thickness of thatching will enable us to attain our object. The straw, however, will not be altogether lost, as a farmer will know well what to do with it after it has done duty on the stack, when he has his cattle in the fold. We have no faith in having only twenty or thirty cartloads in a heap, however well protected and stored. There should not be less quantity than a hundred loads for a stack, if ice is required all the year round." If the ice is stored in a dry or freezing state snow may be mixed with it, but if stored during a thaw snow is a disadvantage. Snow alone cannot be satisfactorily preserved for any lengthened period.

Growing Mushrooms (*Idem*).—They may be grown in any house, shed, or cellar having a temperature between 50° and 60°. The material, horse stable manure with the long litter forked out, should be spread in a shed to be dried somewhat and sweetened, then made into a bed that should not be less than 4 feet wide and 6 long, or the heat will not be retained in winter. The bed must be made as firm as possible by heating and treading. It will probably heat violently, and not until the heat is declining must the spawn be inserted, pressing in lumps as large as pigeons' eggs 8 or 9 inches apart. A few days afterwards cover the bed with fresh loam and beat it firmly down with a spade, the firm soil being an inch thick, then cover the bed with hay or soft straw, which must be regulated in thickness by the heat of the bed or the shed in which it is placed. The great points to be attended to in growing Mushrooms are an equality of temperature and moisture.

Names of Fruits.—We have many times notified that only six varieties of fruits can be named at once; still large packages reach us, the contents of which cannot be examined. Some fruits are not named because the sender's name does not accompany them, and we cannot always determine to whom the respective parcels belong, even by the aid of letters received by post. Pears, we have previously intimated, ought to be ripe or approaching ripeness when sent, or a number of them cannot be identified. All packages must be carriage paid; unpaid parcels are sent every week that are not taken in. The fee for naming fruit to non-subscribers is 5s. It is important that these conditions be attended to for preventing disappointment. (*L. Watts*).—The Pear is Beurré Diel, the Apple American Mother. (*H. J. W., Taunton*).—We have carefully examined such of the Pears as were not decayed, and we have failed to recognise any of them. We suspect they are from imported trees which have been selected without reference to their adaptability to this climate, as not one of them possesses any merit to warrant their being retained in cultivation. (*G. S.*).—4, Cox's Orange Pippin; 5, Princess Charlotte; 8, Sturmer Pippin. (*H. C. Prinsep*).—34, 38, and 39, Marie Louise d'Uccle; 40, Dunmore; 41, Thompson's; 50, Napoleon. (*J. Garaway & Co.*).—It is not Cornish Gullflower; it is evidently not a variety of any merit. (*A. P.*).—The Apples are undoubtedly Blenheim Pippin. (*D. Walker*).—1, not known; 2, Bergamotte Buffo; 3, Beurré Hardy; 4, Joséphine de Malines; 5, Beurré d'Arenberg. (*J. F. L.*).—Hollandbury. (*J. N.*).—2, Golden Reinette; 3, Franklin's Golden Pippin; 4, Scarlet Nonpareil; 5, Reinette de Canada. (*Peter Morris*).—Apples.—1, Selwood's Reinette; 2, London Pippin. Pear.—Baronne de Mello. (*A. Harding*).—Apples.—1, Adams' Pearmain; 2, Borovitski; 3, Cox's Orange Pippin; 4, Bedfordshire Foundling (?); 5, Minshall Crab; 6, Court of Wick. Pears.—1, Marie Louise; 2, Crasanne; 3, not known. (*R. P. W.*).—We are still of opinion that the Apple received is Stamford Pippin. The Pear is certainly not Doyenné Defays, which is a delicious variety, and yours is worthless. (*Ramatho*).—The Apples sent are not ripe and have not come to their flavour. It seems to be a good keeper, and has the character of being a good-flavoured Apple when ripe. (*J. E.*).—1, not known; 2, Margil; 3, Golden Russet; 4, Scarlet Nonpareil. (*J. T.*).—Pears—not ripe. Apples.—4, Beauty of Kent; 7, Emperor Alexander; 8, Newtown Spitzenberg; 9, Blenheim Pippin; 10, not known; 11, Sam Yonug; 12, Golden Noble. (*Centurion*).—If you send six varieties at a time they shall be attended to. When fruit is sent by the peck

and even hushel it is impossible for us even to examine it. See the above conditions, which have been inserted in many previous issues.

Names of Plants (*H. P. D.*).—*Euonymus europæus*, the Spindle Tree. See reply above. (*Reader*).—*Pyrethrum uliginosum*. (*A. H. G.*).—*Cotoneaster bacillaris*. The fruits, though not hurtful, would have been of little use for the purpose you mention. (*W. H. W.*).—1, Resembles a *Melastoma*, but is not sufficient for identification; 2, *Escallonia macrantha*; 3, *Pyrus japonica*.

Bees Nearly Starved (*A Subscriber*).—We fear your prospect is not encouraging. When the weather is cold bees can only maintain their necessary heat by keeping in a close cluster; and with food in abundance at the bottom of the hive they still may starve, because if they were to separate from one another in order to take it they would die of chill. Your only chance is to give food at the top of the skep, and this should take the form of barleysugar put in at the top hole and covered down very carefully so that no heated air is allowed to escape. You may in this way by attention keep them going until we near the spring, when syrup may be supplied. As soon as we get a genial day lift the hive from its stand, and, driving the bees up by smoke, pour some good syrup upon the combs held sideways so that it runs into the cells, but avoid pouring it over the bees; this will give them a little store to help them over their difficulties. Cover the hive well to keep them as warm as possible.

Bees not Taking Food (*E. T.*).—See reply to "SUBSCRIBER." If the hive is light it is desirable, of course, to add to the resources which are to last the winter, but if syrup be offered it should be rather less watery than that you mention. With barleysugar you may succeed in wintering the stock even if now it has scarcely any sealed store. Flour cake may be given later on.



POULTRY AND PIGEON CHRONICLE.

IMPROVEMENT OF THE HAMPSHIRE AND WEST COUNTRY DOWN SHEEP.

(Continued from page 369.)

HAVING previously alluded to the best style and character of certain flocks of these sheep and their breeders which have been available for the past twenty-five years we must refer to a valuable class of sheep called the Somerset Downs, which were common to that county for a number of years following the attempt made by the Somerset breeders to establish the Down breed, and to discard the horned ewes entirely. They thought that they could give up the horned breed and obtain all the advantages they required from a Down stock. They, however, soon found their mistake, for the Down ewes of the pure breeds, either of Hampshires or Sussex Down, would not bring their lambs early, although reared on the same soil and climate where the horned ewes had always done so from time immemorial. The far larger portion of the farmers returned in consequence to the breeding of horned stock. At the same time it must be observed that they could not raise lambs enough from the Downs. There were, however, about that period some farmers who reared stock of the cross between the horns and Downs by the use of the Down ram with their horned ewes, and this was done to some extent in both Dorset and Somerset. They had no definite object in view like that which we shall presently show is our object in introducing the subject—that is, the fixing a new type and character of sheep, and therefore they did not continue the cross. In consequence of the cross and the use of the Hampshire or Sussex rams with ewes of this cross we found numerous instances where remarkably valuable stock was to be obtained at the Appleshaw and Weyhill fairs in Hampshire. We have purchased ewes of this cross at various times, and they answered well; lambing in December, bringing plenty of twins, and being excellent nurses, they reared lambs of the best quality for Easter.

In looking back to the period when we had a choice for selection of some of these cross-bred stock it induces us to believe that a new and improved fixed type and character of sheep would be very desirable at the present time for the improvement and renovation of the Hampshire and West-country Down breed of sheep.

Although the cross-bred stock to which we have referred is not now available, we are induced to recommend the raising of a new style of animal and the fixing of a type and character to be called the Somerset Down, to be raised by mating the Hampshire Down ram with the Somerset ewe. Nor was there ever a time when we had so valuable a stock of Somerset ewes to select from; and there are still some very good flocks of Hampshire Downs from which to obtain rams. Having the object in view of raising superior lambs for the Easter markets we for many years kept the best Somerset ewes we could buy, and mated them with Hampshire Down rams of our selection, and always found the produce in lambs, both in numbers and quality, very superior.

In accordance with the subject upon which we are writing we shall quote from a paper read at the Botley and South Hants Farmers' Club by Mr. Joseph Blundell of Southampton in May last, the subject being "The Cross-breeding of Sheep, with the View of Fixing a New and Improved Breed." He says, "Practical sheep-breeders will admit at once that no objection can be taken against an alliance between the Hampshire Downs and the Somerset horned sheep, because the original sheep of Hampshire were a horned breed; the same with the Shropshire breed. In Wiltshire, too, the original stock of the county were horned animals. In order, however, that no prejudice may arise as to the value and distinctness of character, it must be considered that we are not recommending the original Dorset breed for crossing with the Down sheep, but the improved Somerset, the latter being far superior to the former in all respects. With regard to the Hampshire Downs of the improved and present style and type we highly appreciate them, but yet think they may be improved in some respects by the use of the new cross if farmers can be found who will undertake breeding and fixing a type of sheep such as may be produced through the alliance of the Hampshire and Somerset stock, especially if carried out with intelligence, and for the most part upon those lines which gave us the Oxford Down breed. The advantages which may reasonably be expected from a new type of sheep called the Somerset Down are as follows:—That they would bring their lambs earlier by from fourteen to eighteen days, produce from 10 to 12 per cent. more lambs, and the ewes yield more milk than the Hampshire Downs; that they would be of even more early maturity and greater weight for age.

"As early maturity or weight for age must be considered one of the leading points to be considered in connection with the subject for discussion on this occasion, I have taken some little pains to obtain the weight for age of lambs of the Hampshire Down and Somerset cross breed exhibited at the Easter Cattle Show of the Botley and South Hants Farmers' Club by myself in the year 1845, which gave a dead weight of 10 stones, the pen of ten being about six months old, and a single lamb weighed 11 stones dressed as mutton. Mr. Geo. Gray's prize lambs in 1874 had a dead weight of 10 stones, with the same number and the same age, and a single lamb weighed 10 stones 5 lbs. dressed as mutton. Some Hampshire Down lambs exhibited for prizes at Overton Fair on the 18th of July, being about six months old, gave an estimated weight of 9 stones dressed as mutton. Hampshire Down lambs exhibited for prizes at Winchester Fair on the 23rd of October for several years, ten best out of one hundred (as returned by three layers), being at that time about nine months old, gave 13 stones, and a single lamb weighing 114 lbs. Hampshire Down lambs as exhibited at Islington Hall Cattle Show in pens of three in December, 1880, being at that time about ten months old, were Mr. A. Morrison's live weight of three lambs (first prize), 5 cwt. 3 qrs., the dead weight of each animal being estimated at 15 stones. Sir Edward Halse (second-prize animals) gave a live weight for three lambs of 5 cwt. 1 qr. 4 lbs., the dead weight of each being estimated at 14 stones. In order to decide the dead weight of the animals I have assumed that every imperial stone of 14 lbs. of live weight will yield as many London market stones of 8 lbs., and this is the best way as a rule. In referring to the weights of lambs shown at Botley Easter Exhibition it must be remembered that exhibitors in this case are at some little disadvantage in consequence of nearly all the lambs having been disposed of some time previously, which reduces the number from which to select, besides which it is customary to retain chiefly the ewe lambs, which answer the purpose for exhibition, as they prove the best quality; yet the wether lambs would, if kept, make the heaviest weights. Again, it must be remembered that the lambs compared with them and shown at Overton of the same age are all kept on together, giving a better opportunity for selection of heavier weights, especially when taken from larger flocks. The Hampshire Down lambs exhibited at Winchester Fair have also the same advantage. The Exhibition of lambs at Islington Hall were only in pens of three, and might have been exceptional animals taken from the flocks which

they represent. Besides which it has been stated that they had been housed, in which case they, of course, would have an advantage over animals fed in the open field. In speaking of exceptional animals, we reckon these at 3 per cent., it is sometimes only two, but never more than four.

"We must now refer to the best way of obtaining a fixed type of sheep, exhibiting as much as possible the Hampshire Down character, in order that we may have a breed of animals to fall back upon for the purpose, not only of maintaining the Hampshire Downs, but improving them. It would be well if several flock-masters would take the matter in hand simultaneously, as in the case of Oxford Downs as bred by Mr. S. Druce, who had the advantage of selecting suitable animals from the flocks of those engaged in the same object of fixing the type. We, therefore, recommend and hope that some stock-breeder of sufficient experience and perseverance will take up the question of fixing the type to which we have alluded."

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This year, on account of favourable weather, this has been greatly assisted by steam power wherever farmers have used it. It has, as applied to the autumn cultivation of land intended for Barley or root crops in the spring, been of great importance—not only as to the quantity of work done in so little time, but that it has also relieved the horses from their labour. We cannot say that we approve of rafter ploughing and working the cultivator with the shares on upon Clover leas, because it destroys the Clover roots, which ought to be allowed to remain in the land and afford by their decay a valuable manure for the Wheat or other crop which may succeed. When the Clover lea is encumbered with twitch or couch grass our plan is not to plough and destroy the Clover roots so valuable for the next crop, but to scarify and not to deeply break up the land rough, but only scarify the surface with the points on, not the shares. These will run like the teeth of a comb between the roots of Clover deep enough to loosen the surface and comb out the couch. After repeated work, each passage of the implement crossways with the former one will effectually pull out the greater portion of the couch, especially by the use of the Howard's self-lifting iron drag. Although nothing in fallowing can make a foul Clover lea quite clean where couch has existed during the summer, yet it will be made sufficiently clean to produce a good crop of Wheat with an ordinary dressing of manure if the Clover roots are not destroyed and the land ploughed and pressed in due season. We must now state the difference as affects the future crop of corn between the two modes of cleaning the lea; for if the land is ploughed for the purpose and then cultivated, not only are the Clover roots destroyed but the land is made so loose that the Wheat plants become weak-kneed, as it is called, and break down before harvest. If the land is only scarified on the surface and then ploughed and pressed the young plants get a firm hold of the soil when the seed is deposited broadcast and falls into the presser grooves. Our plan is to plough rather deeply when the couch roots prevail, and then horse-hoe the land in the spring. In this way the Clover roots remain and furnish plant food for the Wheat, and has in our experience generally produced several sacks per acre more grain than treated as what we call a bastard fallow. Winter Beans should have been planted before the Wheat; if not they should now be done quickly. If the land should be heavy and not free for drilling or dibbling it is a good plan to drop the seed in the furrows at certain distances, and with a shallow ploughing cover the seed in, for in this way the birds do not injure them nearly so much as when drilled. Better still is the little seed drill attached to the heel of the plough; this seeds the land with more regularity than hand-dropping, and with less expense.

Hand Labour.—Men will still be required in storing or pitting root crops, especially Mangolds, which cannot be allowed longer to remain in the ground without risk and loss by the frosts peculiar to November. As we do not advise the sowing of Wheat after Mangolds, but prefer to hold the land over for Barley, Oats, or Peas, we think it the best plan to heap the roots in the field by employing all the men, women, and boys that can be spared for the work; or otherwise have the work done by the acre by casting together, first twisting off the greens, for we do not allow any knife or hook to be used in storing roots of any kind, but making up into heaps which clear a space of about 10 yards each way. It is therefore a question of hand labour only. The horses are then at liberty for more important work, such as completing or assisting in the preparation and seeding on the Wheat land. Whether the roots are required as a whole or only in part to be consumed upon the land they are well placed, being covered with a little damaged straw or fern and covered with earth; and if required for cattle in the yards or boxes they may be carted off to the homestead the first opportunity after Wheat-sowing is finished, without damaging the land by carting off the roots in a wet time. The greens are carted away daily and given to store cattle, milch cows, sheep, or breeding sows in the yards. We, however, approve of ploughing them in when Wheat follows, as they afford a considerable amount of manure for the grain crop.

Live Stock.—The Dorset and Somerset horned ewes are forward in lamb this year, and several flocks which we have visited within the

last few days are lambing fast, and show that the lambing will be completed about the end of November. The ewes which have lambed should be fed upon the Clover seeds at daytime, but a fold at night of mustard or rape is better for the lambs. The ewes should have in addition once a day cut Turnip and cake meal mixed in troughs, and this is essential although they may have plenty of grass, as it prepares them for eating trough food in the future; for we have seen them rather severely checked in condition when removed suddenly from good grass into Turnips or Swedes, which they should be when the lambs are about three weeks or a month old. The mode of feeding the lambs will be matter for consideration further on. The fatting cattle in the boxes or stalls must now receive great attention, in order that those which are intended for sale at Christmas may be ready for the butcher at that time; and a slight increase of bean meal, say 2 lbs. per day, in addition to the usual allowance of oilcake, will make them firm and fleshy at the time of sale. The home farmer in putting his cattle into the boxes at first must not give them any hay with their roots, but only good sweet straw; for if they are allowed hay at the commencement of feeding they will not take to straw afterwards without receiving a check. The feeding with straw in preference is extremely important, for hay is not only too costly to turn to profit in feeding, but in our experience for many years we have found it unhealthy for the bullocks if they receive a liberal allowance of cake and meal with the roots, as we have frequently found them refuse their food for many hours in succession, but never when they get only straw as fodder whether cut into chaff or otherwise. The milch cows should now receive, as supplementary to the grass food, some cut roots mixed with straw chaff and decorticated cotton cake in the racks at milking time, and another bait afterwards if they lie in the pens at night, as they ought very soon to do.

KERRY CATTLE.—The sale of pedigree Kerry Cows at Streame Farm, Horeham Road, Sussex, which was postponed a few weeks ago, will positively take place on the 8th of November. Particulars will be found in our advertising pages.

THE HARVEST IN SCOTLAND.—The harvest in the Lothians is said to be the worst that has been experienced for many years. The grain generally is seriously damaged by long exposure, and the stock, Barley especially, is so deteriorated in quality that it is practically unsaleable to maltsters. The Potato disease is still spreading. In some localities the crops are not worth lifting, and in others there is only one-tenth of the Potatoes sound. The disease spreading so rapidly, farmers are fast digging the Potatoes and sending them into the market; consequently prices are falling rapidly. The Potatoes now being sold in London contain a large per-centage of diseased tubers.

POULTRY AND PIGEONS

JANUARY CHICKENS.

THE passing months render it necessary for the prudent fancier to prepare for next year's work in the breeding yard. If early chickens are to be hatched, it will be expedient before very long to mate up a yard or two of suitable birds. The 11th of December is the day upon which the setting season opens, and lucky is the fancier who on that day has two or three settings of eggs collected, and either hens or a reliable incubator to entrust them to. The birds wanted for the Palace and Birmingham Shows must not be counted upon to furnish the necessary eggs. They will come in a little later, but must be supplemented at first by a few others.

Two difficulties present themselves—firstly, to procure eggs at the right time, and secondly to insure the fertility of the eggs. Both difficulties can be overcome if proper foresight has been exercised, and if the advice which we gave early in the year has been followed. There should now be in every yard where early chickens are desired two or three hens of last year which have almost moulted out. These should be mated about the 1st of November with a suitable cockerel not intended for the show pen. There should also be some pullets just about ready to lay. The best mate for these will be a late-hatched cockerel of last year, which has now come to maturity and has up to this period been kept apart from the hens. Either or both of these plans is preferable to mating a cockerel with pullets; but if this last course be inevitable, then the birds of each sex should be as fully matured as possible. Not more than two or three hens or pullets should be allowed to each male bird.

Having mated up the breeding pens, it will be desirable to allot to them the warmest houses and driest runs, and to give them as much liberty as possible. A moderate portion of meat or some other stimulant and a liberal allowance of non-fattening food are the next points to be attended to. We have found that

the laying-on of fat is, at this season especially, a great hindrance to laying, and this should be guarded against. A small feed of oatmeal three times a day will often work wonders in bringing in a few eggs, when other means have failed to check the tendency to fatten. Oatmeal alone is expensive food, but then eggs for hatching in December are worth some extra expense.

We are not advocates of artificial heating as a means of producing early eggs, but any method of preserving the natural heat of the body from too speedy exhaustion may with advantage be adopted. We one winter had an unusually abundant supply of eggs from our Spanish pullets, and found that our poultry keeper had replaced the ordinary roost by a 9-inch plank covered with straw. A few ties of straw rope or cord kept the straw from falling off the plank, and, as the most of the droppings fell clear of the plank, an occasional renewal of the straw was all that was necessary. This plan is better than bedding the birds in straw on the ground, as it is more to their taste and effects a considerable saving in straw.

In very unfavourable weather it a good plan to confine the birds to their houses, but this can only be done when these are fairly large and well lighted, and it should only be done in really bad weather, or the stamina of the birds will be lessened, and the chance of fertile eggs decreased.

We will suppose that the expected eggs are forthcoming early in December. The next trouble will be as to getting them hatched. We generally employ an incubator for hatching purposes, and when once the season has commenced the eggs are put into the incubator as they are laid. It must be borne in mind, however, that eggs which are some days old do not hatch quite so well in an incubator as under a hen, and as there may be some eggs which have been laid some little time before the 11th of December it is well to provide a hen or two for these. If there are any surplus pullets laying towards the end of November, these should be confined to their house and a few eggs left in the nest. These will generally lead to one or two of them clucking. If this can not be managed, a general search amongst friends and neighbours is the only other course. We well remember a few years back instituting such a search just before Christmas. We visited some six or seven villages and some forty or fifty cottages without result. We at last came upon a solitary cottage with some well-kept hens about the door. We were met by an old woman, who answered our "Have you such a thing as a clucking hen?" with an apparently surprised query—"What would anybody be wanting with a clucking hen at this time of year?" Taking this for a denial we turned to go with the reply, "That anyone who had a lot of valuable eggs to set would be glad of a hen even then." It was a lucky remark, for it softened the old lady's heart and led to a confession that she had two clucking hens which were intended to be set upon Duck eggs. A good deal of persuasion and a promise of a setting of Aylesbury Duck eggs led to a transfer of the hens to our possession.

The difficulty we experienced on that and other occasions led us to try an incubator for early hatching, and except for the eggs gathered for hatching out on the 1st of January we have found that it answered all purposes. For the collected eggs the hens are better, but even these should be placed in the incubator if a hen cannot be found.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881. October.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.				
		Dry.	Wet.			Max.	Min.	In sun.	On grass.			
Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.			
Snn. 16	30.355	37.6	35.6	N.	47.6	49.6	31.2	89.4	24.3	—		
Mon. 17	30.416	32.6	31.7	N.E.	45.7	51.0	27.3	87.5	20.6	—		
Tues. 18	30.307	37.4	37.3	N.E.	44.6	51.7	30.8	86.9	23.6	—		
Wed. 19	30.177	43.3	39.3	E.	44.4	49.9	35.5	88.3	26.6	—		
Thurs. 20	29.853	45.7	42.4	S.E.	44.4	52.4	38.3	93.2	27.3	0.280		
Friday 21	29.631	44.9	44.3	E.	44.8	48.3	43.6	63.4	34.8	—		
Satur. 22	29.457	43.3	42.0	E.	45.6	49.2	41.6	52.0	44.3	1.028		
	30.028	40.7	38.9		45.3	50.3	35.9	80.1	28.8	1.308		

REMARKS.

16th.—Fine, bright, and cold.

17th.—Cold foggy morning; fine afternoon, but continuing hazy.

18th.—Slight fog in morning, afterwards fine and bright.

19th.—Very fine bright day.

20th.—Fine and bright, with gusty N.E. wind.

21st.—Rain in early morning; hazy dull day.

22nd.—Fine till 10 A.M.; rain rest of the day.

A cold week with several very sharp frosts on grass. Heavy rain on 22nd and during night of 22nd—23rd.—G. J. SYMONS.



3rd	TH	
4th	F	
5th	S	Sale of Bulbs at Mr. Stevens' Rooms, Covent Garden.
6th	SUN	21ST SUNDAY AFTER TRINITY.
7th	M	
8th	TU	Royal Horticultural Society, Fruit and Floral Committees at
9th	W	

[11 A.M.]

CYCLAMENS.

AT this season of the year, and onwards through the winter and spring months, few plants are more attractive or useful than well-grown Cyclamens. The foliage alone is attractive independent of the flowers, but when these are produced they are serviceable for almost any purpose, either for bouquets or vases. The plants when in flower are admirably adapted for room-decoration, and not only look beautiful but last a long time; indeed where gas is not used they last nearly as long in good condition, if the position they occupy is light, as if allowed to flower in a conservatory. If rendered useless after doing duty for room-decoration it is of little consequence, as a fresh stock can be annually raised; in fact, I fail to see the utility of troubling with them a second season, when good plants can be grown in twelve or fourteen months from the time of sowing. I have endeavoured to grow old plants, but am now fully convinced that to raise them annually, as is general with Chinese Primulas, is by far the best system that can be practised. Sowing the seed in the spring is too late if good-sized plants are to be produced. The best batch I ever grew was from seed sown the last week in October, and in exactly twelve months good plants in 5 and 6-inch pots were obtained, some of the earliest flowering profusely, and continued in succession to supply flowers through the winter and spring. They are as easy to grow as Primulas when once the right system is adopted, only they take a little longer time.

The primary points necessary to achieve successful results are to sow the seed in October, or early in November at the latest, so that small healthy plants will be produced for potting early in January. A check to the plants while growing must be avoided, and they dislike a dry atmosphere. When growing well they have abundance of water in the leaves in small globules, which are readily discernible if a leaf is torn open, and when in this condition cultivators may rest assured the plants are thriving. Practice has convinced me the plants must not be placed upon dry shelves in any stages of growth. A bed of ashes is the best, keeping the plants close to the glass, or the foliage is liable to become weakly.

If possible Cyclamens should have a small house devoted to them after they are in pots, as they do not grow well when mixed with other plants; but small Ferns and some other plants will adapt themselves to the conditions of the Cyclamen house. Small low houses are too frequently needed in the majority of private gardens. To a large extent the reason of these plants not being well grown in many establishments

may be attributed to this. It is almost impossible, with the medley system of growing decorative plants, to have them all in such fine condition as where separate houses are devoted to them.

In sowing Cyclamen seed pans or 6-inch pots should be employed, well drained, and nearly filled with a light compost of loam, leaf soil, and sand. The seed should be covered with sandy peat and leaf soil mixed. The soil must be well watered, and covered with a square of glass until germination takes place, and the pots be placed in heat. New seed is preferable, as it soon germinates, but old seed takes a much longer time. When the seedlings appear the glass must be tilted, exposing the young plants gradually to more light. They must be kept in a temperature not less than 60° in their early stages, and when large enough to handle should be pricked out into other pans. If the sun proves strong shade is necessary for a few days until they commence rooting. The compost must be light, containing much leaf soil, so that the young plants will have plenty of roots when lifted for potting. The first-size pots should be 2½ inches in diameter, and if established in these by the end of January so much the better. When in small pots they should stand on a moist bed close together, and if a little cocoa-nut fibre can be placed amongst the pots it will prevent them becoming dry too quickly. The next shift should be into 3 and 4-inch pots according to the progress the plants have made. The soil then may be of a stronger nature, employing a greater proportion of loam, and pressing it into the pots more firmly than is necessary at the first potting. By the time these pots are full of roots the plants will be of good size. The temperature can be gradually lowered, and fire dispensed with as the season advances until the plants can be grown under cool conditions. If care is not judiciously exercised the plants may be checked when fire is discontinued. At first air must be sparingly admitted, giving more as the atmosphere outside becomes warmer until they will bear it circulating freely amongst them. If the weather and nights prove warm during June they can be grown afterwards in cold frames.

Cyclamens are greatly benefited by early closing during sunny days in the early part of the summer months. Shade is necessary during hot weather, and must be employed with some forethought so as not to exclude too much light and thus weaken the foliage. For the final potting 5 and 6-inch pots may be employed, the size depending upon the strength of the plants. The potting may be firmer than in any previous case, and a seventh of well-decayed dung or some bone dust can be added to the loam. Leaf soil will not be needed. After potting the frame must be closed for a time until the plants fairly commence rooting, when air may again be gradually admitted until a good supply can be given, and a little ventilation provided all night. A free circulation of air is essential for obtaining Cyclamens in their best condition, as their beauty much depends upon bold stout foliage close over the pots. When plants are in this state and brought gradually into flower as required with a little heat in a position near to the glass, the flowers stand up boldly above the foliage and require no stakes nor ties.

While growing, Cyclamens need liberal supplies of water at the roots as well as on the foliage, but it is prudent to drain the pots well, as the plants dislike stagnant soil. Liquid manure will only be needed after the large pots are well filled

with roots, and then it must be supplied in a weak state alternately with clear water. Nothing is better than that made from cow manure and soot and used in a clear state. The latter stimulates the plants quickly and brings out the beautiful marbled markings of their foliage.

It is surprising what a lengthened supply of flowers can be produced from one good batch of plants all raised at the same time. This is accomplished by bringing them into heat successively, and keeping the remaining portion of the stock cool until wanted. I am inclined to believe that those who grow one good batch of plants in the time and manner described, will not trouble further with growing old plants a second year.

Those who have small plants from seed sown late will do well to remove any flowers that may appear, and keep the plants slowly growing in heat through the winter. By following the details given above the small plants will develop into grand specimens ready for next autumn and winter flowering.—W. BARDNEY.

POTATO TRIALS AT GIRTFORD IN 1881.

On the 9th April I planted on a piece of light sandy loam in the Experimental Garden trial rows of thirty-six varieties of some of the most distinct of the older and several of the newer sorts of Potatoes, both early and late kinds. The ground was unmanured, but had been trenched the previous year, and the sets were placed in drills, which were filled in with a mixture of burnt rubbish, to which I added about four bushels of soot to the load; 2 lbs. per chain of Clay's special Potato fertiliser was also sown in the drills, omitting some intervening duplicate rows. The seed consisted of selected fair-sized sets, with the exception of Reading Hero, Woodstock Kidney, Wormleighton's Seedling, and two or three others, the seed of which I found it necessary to economise in order to complete the rows, and of these sorts small cut sets with mostly a single eye only were used. The drills for the early varieties were drawn 2 feet apart, and those for the later and vigorous growers 3 feet apart. Of several of the varieties additional intervening rows were planted without the fertiliser. The objects of my trials were, 1, To ascertain the sorts best suited to the soil of the locality; 2, To enable me to cross-fertilise the best varieties; and 3, To test the value of Clay's special Potato manure or fertiliser. Many of the early varieties ripened off somewhat prematurely during the hot weather of July without having had sufficient rain from the time of planting to develop a good crop. Single roots were tried from time to time, but I did not lift the bulk until the 5th of October, when the late sorts were ready, in order that I might the better compare results.

I found but little difference in the produce of varieties where whole or cut sets were used. For instance, the crops of Wormleighton's Seedling, for which small-cut sets were used, and of Magnum Bonum from whole sets, were about equal, both being very heavy; in other respects the two varieties appear exactly similar. The heaviest crops in the trials were obtained from these. The effect of the special fertiliser on the early sorts as compared with the same varieties planted without it was hardly perceptible, but in the late varieties the difference was very marked; and although I was unable to weigh the produce, I found from the bulk which was removed in market baskets that the rows of the later sorts manured with the fertiliser were on an average 50 per cent. in excess of those not treated with it; the result confirming the opinion I had already formed from previous practice—that artificial manures in dry weather are of comparatively little use for the particular crop for which they are intended, although their value as adding some unconsumed fertilising matter to the soil for future use is important, and sometimes very perceptible in future years. The early Potatoes, which were ripe before the autumn rains saturated the ground, were almost entirely free from disease, the only exceptions being in the case of a few of the American sorts, in which disease had probably been present in the sets.

The earliest and best of the early varieties was a medium-sized kidney sent to me as Fenn's Early Kidney, and which I believe to be Early Market. The haulm is very short, and it may evidently be more profitably grown in rows closer than 2 feet apart. The tubers averaged nearly as large as those of Rivers' Ashleaf, and the produce in quantity quite equal to it. Giant King, usually much diseased, but this season especially free from it, was very fine. The same remark applies to Early Shaw, which used to be grown a good deal in this district for market purposes, but is now almost displaced by the American Rose and others of its type, as they are heavier croppers and are good for sale right through the

Potato season. King Noble I consider inferior to Giant King and Early Shaw. Beauty of Hebron has maintained its position as the best of the early American varieties, its handsome tubers and paler skin giving it an advantage in the market over the Rose, whilst in quality and quantity of produce it is at least equal to the Rose. Red and coloured Potatoes are not, however, popular in the market; and if the white sport from Beauty of Hebron proves to be as productive as its coloured type it will be a material advance. International Kidney was not equal to its usual size, but the quality when cooked was excellent. Disease was, however, largely present at the lifting.

Schoolmaster was handsome, even-sized, large and prolific, with few diseased tubers. The quality and flavour off the dry sandy loam was very good, and I look upon this variety as one of the best light-land market Potatoes of recent introduction, and one which when more extensively known will displace some of the older round whites. Porter's Excelsior was small, and, as usual, much diseased. It is very much like a Potato I had for nearly twenty years under the name of Parker's Ashleaf, and of which I could rarely save more than seed again. Snowflake and Swan's Egg, two varieties of the same type and not much dissimilar, were both very handsome and of fair size, but both cooked heavy, hard, and waxy. Pride of America is certainly distinct from Snowflake, as it is of larger size, of better quality, and the colour a light lemon white. Taken altogether it appears to me to be one of the best, if not the best, of the new American sorts. Covent Garden Perfection did not reach the standard here which has been adjudged it by public opinion. The quality was first-rate, but both in size of tuber and produce it was far below many others, although the sets were of full size. It was not much affected by disease. Woodstock Kidney, on the other hand, from small-cut sets gave large, and, where not grown out, handsome tubers. The quality is good, and although fully one-half the tubers were diseased the produce was amongst the heaviest.

Grampian as a coloured round has good appearance and came of even size, but was much diseased; indeed this variety has especially suffered in this respect during the past three years at Girtford, and has not justified the recommendation of the Committee as a profitable light-land Potato for growth in Ireland. Trophy came large and handsome, and fairly free from disease. The quality of this and the next I have not yet ascertained. Vicar of Laleham, a very large and handsome purplish-red round variety, was the largest of all; and although three or four tubers to a root was about the average, the bulk was very heavy and it was but little diseased. Matchless and White Mountain are both large and handsome white roundish flat varieties, the latter being the largest white in the batch, but both were very much diseased. Reading Abbey is a good-quality white round Potato of somewhat vigorous growth, but the tubers were considerably affected by disease. The largest and best of the Lapstone type is Lady Godiva, but here again disease tells yearly a constant and conspicuous tale. Magnum Bonum and Wormleighton's Seedling were both very free from disease, and both are strong growers, ripening at the same time, very ugly and much grown out, and as I have stated before, not here perceptibly distinct. Scotch Champion planted at the same time was this year considerably diseased and has changed places with Magnum Bonum, which during the two previous seasons has not withstood the disease nearly so well as Champion. Champions are much grown out where planted early, but where late planted are in much better form and free from disease. The crop was large from the trial row.

The most serviceable Potato for winter use I believe will be Suttons' Reading Hero, as the quality is first-rate, the produce very heavy, and not a single diseased tuber, although the foliage was affected. It is a very vigorous grower, the stem almost wood when ripe; it must have ample space. The only objection to it—and that, I may fairly say, a temporary one, for it is doubtless the result of the exceptional season—is that the tubers were a little grown out, but not so much so as Magnum Bonum or Champion. If others have found Reading Hero as free from disease as it was here it will be the most valuable introduction we have lately had. It is a round, slightly flat, and elongated variety; eyes not very deep, and comes in late. The flesh is light and floury, but sufficiently firm without being so waxy as Champion.

From the newly or recently introduced sorts my selection as the most useful for general purposes would be the following five—viz., Beauty of Hebron, Schoolmaster, Pride of America, Woodstock Kidney, and Reading Hero.

The results of cross-fertilisation were not very encouraging, and from upwards of one hundred crosses, or attempted crosses, I shall have to be content with some half dozen berries. One only from Champion crossed by Victoria, and the only fruit I have ever had from Champion, I shall watch with some interest, as the produce

should, if there is anything in breed, give an improvement on Champion, and lead in the direction recommended by the Potato Commission. Doubtless more success would have attended my work, but the extreme drought of June caused the berries to drop from the sudden ripening at the roots, and later crosses did not ripen.—T. LAXTON, *Bedford*.

PYRUS SALICIFOLIA.

A NOTE on this deciduous tree may not be out of place now that the planting season has arrived. It is surprising it is not more planted, and would be perhaps if it was more generally known. It grows into a shapely tree when sufficient room is allowed it to develop naturally. This *Pyrus* attains a large size, and would be suitable for planting in any position singly. When in flower during the month of May a good tree is very beautiful, being covered with its snow white flowers. It appears to thrive well in smoky positions, and cannot be very particular about soil, as it grows here freely in poor soil. When in flower this season the bloom was severely injured by frost, but in spite of this it is bearing a good crop of fruit. The tree fruits annually without fail. The fruits, however, are of no service or beauty, but as a flowering tree it is worthy of a place, and is quite distinct in the foliage from other trees. The great freedom with which it fruits annually has impressed upon my mind that it would in all probability prove a good stock for some Pears. I shall be glad to know if it has been tried, and if so with what results.—LANCASTRIAN.

PLUMS.

In the present season we have had a fair supply of Plums, but by no means a full crop. Most of our trees, standards, pyramids, bushes, and espaliers, flowered well; but frost and keen winds left many of the trees without fruit. In other respects it has been an advantage. The trees have made clean healthy wood and promise well for another season. Mildew and aphides have not been so numerous as in some seasons. We commenced gathering at the end of July from trees on the wall having a south aspect, from Rivers' Early Favourite and Rivers' Prolific, two fine Plums for all purposes when well ripened; soil light loam, gravelly subsoil. *Précoce de Tours* is useful for all purposes; south wall and aspect, strong loam, clay subsoil. *Early Violet*, a very desirable early Plum, ripens about the middle of August. I have a doubt about the accuracy of the name: can this be the Royal Hâtive of the "Fruit Manual?" Orleans comes next; and on a wall with a south aspect the fruits are abundant and fine. I cannot dispense with it. *Victoria*, very fine, one of the most useful Plums we have, especially for market. *Kirke's*, a splendid Plum on south and west walls, has not been so plentiful as we could wish, but remarkably fine and of the best quality. The indispensable *Green Gage* has done us good service; the quality needs no praise. Its purple compeer must accompany it. No Plum in cultivation can surpass this for quality. They are free growers, answer well in many places as standards, and are good bearers. *Bryanston Green Gage* is a fine Plum, but lacks the quality of the above when partly shrivelled; it is very good. *Washington* has been remarkably fine; it is an excellent variety, one of the very best, and ought to be more frequently met with. *Jefferson's* has had a moderate crop, but of good quality from a west aspect. *White Magnum Bonum* was not so plentiful as we could wish, but the quality has been all that could be desired. *Golden Esperen* is rather scarce but good; it does well with us in a west aspect. *La Delicieuse* is a fine late variety, with fruits of large size and good quality; it succeeds as a standard, and the fruit hangs well on the trees during September and October. *Reine Claude de Bavay*, one of the very best late Plums, abundant and fine, of first-rate quality, south and west aspects, hanging to the end of October. *Coe's Golden Drop* had a moderate crop and fine; it needs no praise, south and east aspects are the best, the fruit hanging till November. Many others I might enumerate, but those given have ripened in the order named, and have done us good service for all purposes.—P. D., *Yorkshire*.

THE LATE GALE IN ST. JAMES'S PARK.—Although well acquainted with the Park for more than thirty years, I do not remember having noticed so much damage done by one day's gale as in that of October 14th. The line of old Elms on the north side of the enclosure were the special sufferers thereby. In several of the fallen trunks I examined the larvæ of the goat moth had evidently been at work, but I did not, on a cursory inspection, discover any traces of the beetle (*Scolytus destructor*), which was formerly so harmful to the Elms of this and the adjacent parks. Two trees had been torn up by the

roots that were to all appearance sound. This may be attributable to the effects of the drought of last summer, and to the succeeding influence of the heavy autumn rains.—J. R. S. C.

BOILERS VERSUS WATER.

I READ with much interest Mr. Ollerhead's account of his boilers on page 281, and must say he deserves commendation for his perseverance and the success of his work. It was a bold act; few would have attempted it, and I am afraid there are not many will begin such a job notwithstanding his example. As Mr. Ollerhead asks for the "experience of others on the furring of boilers, and the means of preventing it," I give my opinion on the subject. It seems strange that the subject has not been noticed before this, at least I do not remember seeing it discussed; and as others in the neighbourhood who use the same kind of water must have their boilers in a very bad state, their coal bills and labour must have been great to keep up the required heat in the past cold winters.

Incrustation is generally caused by the deposition of calcareous matters on the heated surfaces of the boiler. Most water except rain water contains lime or magnesia (or both), held in solution by carbonic or sulphuric acid, and such water is generally called "hard." The effect of this hardness is familiar to most people. It destroys soap in washing, and when water of this nature is boiled in a kettle there is a deposit or cake formed over the inner surface. This deposition or solid hard layer of matter is caused by the decomposition of the bicarbonate of lime or magnesia present in the water when heated. Carbonates of lime and magnesia are insoluble in water, but when there is excess of carbonic acid, invariably the result of decomposed organic matter, the carbonates combine with this excess and become bicarbonate. These are soluble in cold water.

On heating such water this excess of carbonic acid is eliminated, and ordinary carbonate of lime and magnesia are deposited. These as a rule form the scale on boilers. Sometimes, however, the water holds sulphate of lime in solution, and this substance is deposited on the inner surface of the boiler and tubes by the gradual evaporation of the water. This form of deposit is more difficult to deal with than the carbonates, as it adheres more closely, and is much harder and tougher than the deposits caused by carbonates.

In steam boilers for both land and marine engines this deposit is the cause of great annoyance, loss of heat, and danger to the boilers, as well as a fruitful source of accident, causing destruction to life and property. Many nostrums have been sent out to steam users, all of which in some way had a claim to respect: Potatoes, sawdust, seaweed, zinc plates, and chemicals have been tried and used in certain cases, but a general cure has been difficult to provide until the subject was looked at really in a chemical manner.

When water containing bicarbonate is heated the excess of carbonic acid, as has been explained, is expelled, and a deposit of chalk in a hard form adheres to the boiler. So also in water containing sulphate of lime, there is a deposit formed which soon accumulates and forms a solid layer between the heated walls of the boiler and the water inside. This is a non-conductor of heat, and the result soon follows—i.e., that the iron burned or blistered, requiring a great amount of expenditure of fuel to heat through the deposit and reach the water beyond, the water is practically enclosed in a jacket of iron (the boiler), inside which is another jacket of incrustation, which everyone knows is a very bad conductor of heat.

The simplest and best cure for this is to introduce periodically a quantity of ordinary washing soda, the proportion varying with the size and work required from the boiler. From 2 to 7 lbs. will amply suffice for any ordinary boiler, say with 200 to 800 feet of 4-inch pipes: this, introduced once a month, will entirely prevent incrustation. With the number of feet of piping to Mr. Ollerhead's boiler 28 or even 56 lbs. would need to be introduced into the supply cistern of his boiler. The action of the washing soda is peculiar, as it, in place of allowing the deposit to form into a cake, causes the carbonate to fall in the form of a mud, whilst it decomposes the sulphate of lime. This mud must be removed periodically, which is simply done by flushing the boiler and opening the relief cocks. Old dirty boilers must be cleaned as Mr. Ollerhead did his; for while the washing soda, or still better caustic soda, American ash &c., prevent incrustation, it will not dissolve or remove incrustation already formed. Knowing the bad effects hard water had on boilers I always used soft water, and we had never any deposit in ours. After being nine or ten years in, there was only a small quantity of mud, but nothing to injure the boiler. In the case, however, of the boiler behind the kitchen fire in the mansion, where it was boiling

nearly night and day to supply hot water for the house, I have seen the deposit taken off 3 and 4 inches thick, and that every year when the family were at home the whole year. That deposit was a warning to me not to use the water in the garden boilers. Of course, there were doors on the boiler used at the house which could be taken out, but even then it was serious work for the men, but certainly nothing in comparison with Mr. Ollerhead's.

The water Mr. Ollerhead uses in his boiler must be very hard indeed that he obtains such a quantity of deposit as 5 ewt. in nine years, or his pipes must be leaking. Does he use the water in his pipes for warming the cold water in his cistern for watering plants as I have seen some do? The small quantity of water evaporated from any boiler, if all is otherwise right, cannot account to my mind for the quantity of deposit taken out, even with all the length of piping he has. That is one of the difficulties we have to determine—to know the quantity held in solution in the water, and the quantity of soda, &c., necessary to neutralise its bad effects. However, it is best to err on the safe side, and the soda in any form will do no harm.—ALEX. SHEARER, 4, Marchmont Street, Edinburgh.

ROSE CATALOGUES.

AGAIN come the Rose catalogues; they descend in a shower! I have had the honour of receiving at least a dozen, and that by no means includes all the important firms that now cater for the public. How extensive the trade must be! How pleasant it would be also to send an order for fifty plants from each, and how glad the respective authors must be that the lists are out. All are once more at liberty to read, compare, and be thankful; for certainly a lazy public has thus furnished to it, if only thus to be used, some very pleasant and profitable Rose reading, while there has been hard and good work in the way of writing.

Looking at once to the future I notice a "white Baroness" announced by Mr. G. Paul, which he promises shall have more substance than the otherwise charming Mabel Morrison. Cranston's Company put forward Mary Pochin, raised in a Leicestershire vicarage garden, and having already received two first-class certificates.

"Bonum nomen,
Bonum omen."

All will hail such a welcome addition to our catalogues. Then Mr. Cant speaks in his prize list of a General Sir Evelyn Wood, with which he gained a new Rose prize in 1880 at the Alexandra Palace; but he does not appear to be sending it as yet into commerce. In the Cranston catalogue—which is largest of all, as becomes a company—there is an engraving of H.P. Mary Pochin, also of Mrs. Jowitt, and even of dear old Devonensis. They publish a grand list of their last year's victories. Both Mr. Cant, Mr. Prince, and Mr. Walters have some pleasant additional reading—the record of visits during last year to their Rose gardens; while Mr. Piper gives a useful list of show Roses of 1879 and 1880. Mr. Turner does not offer a new English Rose this year, but has an evidently carefully drawn up list of the new French Roses. Collating this with Mr. G. Paul's list and that of the Cranston Company I gather that H.P.'s Comtesse de Camondo, George Moreau, and Madame Montel or Montet(?) are the most generally approved; also, all concur in praising Tea Reine Maria Pia, which seems to be very much the same as Reine Marie Henriette, a real vigorous good climbing red Gloire de Dijon; only, luckily for exhibitors, the authorities do not relegate the former to the shut-out H.T. list, which is the hard fate of the latter. Speaking of H.T.'s, I see one grower now offers the Bennett Roses at 1s. each, or 7s. 6d. for the lot. "The world is his who knows how to wait for it" will be feelingly acknowledged by those of us who paid 10s. 6d. for single plants! But even "D. Deal," himself must admit this a bargain, and I do not yet despair of seeing some of them some day in honourable places.—A. C.

PEARS FOR WALLS.

"JOHN BULL" (page 327) is evidently not a gardener, and is, indeed, not very practically minded, and is rather given to east "longing lingering looks behind" him. Some fond memories haunt his dreams, and he would fain live the past over again. He remembers, or has heard of—it is not quite certain which—walls covered with "splendid and splendidly trained" specimens of trees on walls, which "bore an abundance of fruit for use and a surplus for friends or the market." Did they? And if we go back to the old system, will they? If they did, why did those "gentlemen and gardeners who have passed the meridian of life" referred to, grub out the trees? "JOHN BULL" thinks it would be advisable to plant trees for "future generations," forgetting that there is always the possibility of future generations being so

much ahead of us in every branch of pomology as to consider our work of no importance. We are pretty sure that a generation hence our finer dessert Pears, Plums, and maybe even Apples, will not be grown either according to our system or the system of fifty years ago, and we are certain that the system after which "JOHN BULL" hankers will not then find a place.

One reason why gardeners now-a-days, more especially those gardeners whose recollections run back a generation, do not plant trees, the branches of which are ultimately to stretch 30 or 40 feet, is that such trees, however handsome and ornamental, seldom bore anything worth naming for the space occupied and the work entailed. It is not to the point to talk of the bushels of fruit borne by such big trees and compare them with the dozens borne by the smaller trees of to-day. The question is, "Which system produces the best fruit and the greatest quantity from a given space? and also, How long are we to wait for a mere question of sentimentality?" Another is the enormous expense necessary to produce such trees and to maintain them in fruitful condition. It is a comparatively easy task to fill walls with handsome trees. Scores of garden walls are so covered which produce very little fruit, and every practical gardener knows that. Those who succeeded with the old system made their borders very much in the way that Vine borders are made; others essaying to succeed, but not going to the necessary expense, succeeded in covering the walls with barrenness. The formation of—if need be—concreted borders at least 30 feet wide and 3 feet deep of good heavy loam, in order to secure the success which assures "an abundance of fruit for use and a surplus for friends" for any reasonable length of time, is an absolute necessity in ninety-nine cases out of every hundred. The idea that mere planting and training is all is a great mistake.

Fifty years ago labour and material were employed in the making of such borders for Pear trees; now the labour and material is spent on Vine and Peach tree borders, which return for the expense an amount of fruit undreamed of fifty years ago. This is another reason why Pear trees are not so expensively treated now. Another is that labour in "fine" gardens was much cheaper and very much more plentiful than now. It is a hard struggle now with far too many of us to make even vinery borders as they should be made, and we are driven to adopt a system of Pear tree culture that enables us to produce fine fruit plentifully with not a hundredth part of the work necessary under the old system. Then first-class results were secured by keeping the roots into the borders, by concreting borders, &c. Even then things went wrong. Digging and manuring and cropping the borders sooner or later produced overluxuriance and sterility. Now, if our trees are smaller and less perfect we grow them in much smaller quantities of material. Instead of concrete bottoms we now keep our roots where they should be by lifting, and, when it is likely to do good, root-pruning. That both processes are sometimes abused is not the fault of the system, but of the operator. In olden times when spring frosts killed the blossom the trees "went in for basket wood" and sterility. Should that happen now we can easily check the tendency, and at least secure flower buds. The consequence is, that now greater quantities of fruit is produced from a given amount of wall than was in the "good old days," concerning which some people are apt to be too enthusiastic and forgetful. Should an abundant crop come we know exactly where the roots are, and we can give them just the support they need, hence we produce much finer fruit now-a-days. If in the olden time inferior sorts were displaced by better kinds, what a loss of wall and time there was till a blank was filled! Instead of two or three years, it took a great part of a man's life. Now we can make room for testing a new kind with little loss, and necessary blanks are speedily filled.

Your correspondent advises gentlemen and gardeners who have new and lofty walls to consider the advisability of returning to the old system. Everyone to his liking, but we ask them to "seriously consider" the conditions necessary to secure success under that system, and to think whether they should incur it. In the present transitional stage—and it certainly is a transitory one—of pomology, and everything else, we think that our motto should be "Sufficient unto the day is the evil thereof." We cannot think that now the world has begun to move all around that pomology is going to stand. Assuredly it will advance. Where, then, is the wisdom of planting trees that will take a generation to perfect, and that at an unjustifiable expense, when a generation hence both the modern and the ancient may be displaced by a system superior to either. We certainly advise a short cut to plenty of fruit, and not to concern about the affairs of our great grandchildren.

But why new lofty walls to cover at all? Your correspondent says that although the seasons may have altered, and although

Peaches may require glass, the objection has no force as applied to Pears. Where does he live? Did he never hear of Pears failing on walls because of bad weather? We do wish the objection had no force. It must be a favoured spot indeed where Pears always crop well, and never fail to bring the crop to perfection.

Mr. David Thomson of Drumlanrig, and we can quote no higher authority, not long ago published the difference in price between a good new wall and a new orchard house of equal extent. The difference was not much. The difference in results secured by that eminent cultivator was very great. Instead of the precarious chances of open walls, there is the certainty of fine crops under glass. Instead of not always the best fruit and little

of it, there is to be placed fruit so much better as to be scarcely recognisable, and abundance. Instead of much outlay (for a great extent of wall) and little returns, there is the smaller outlay (for a comparatively small amount of orchard house) and certain and liberal returns.

We advise your readers to "seriously consider" if the time has not now arrived for the substitution of orchard houses for walls; of uncertain returns for certain ones; of the very finest fruit possible for comparatively inferior. At all events we ask them to consider whether this is the time to return to expensive methods which will undoubtedly be overthrown. We live in times when things must be made "to pay." Handsome wall trees in the old perfection style never did, and will not now. Pears must be

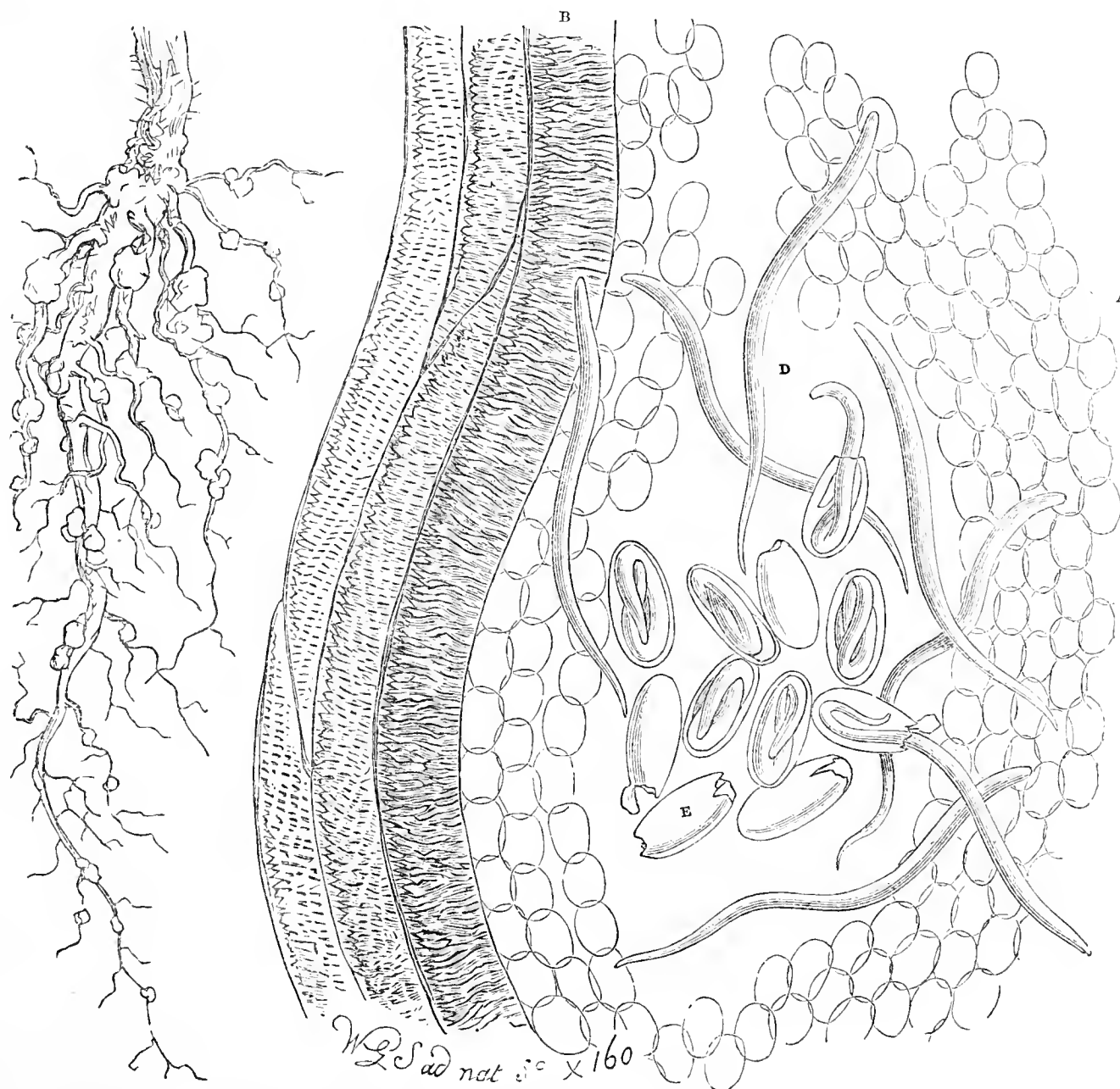


Fig. 66.—THE DISEASE OF CUCUMBER ROOTS, ENLARGED 160 DIAMETERS.

produced quickly, of fine quality, and in quantities to pay interest on the capital and labour. This is the state of matters generally. Of course if expense is nothing, any style fancy may dictate may be adopted. It is, however, worth considering if handsome trees cannot be grown on the newer systems. Your correspondent is hardly consistent on this point. He admits that cordons may be so trained as to be as handsome as ever trees trained on the old system could be, and then begins again to sigh for the old ones. Sentiment in this matter should be laid aside, and when your correspondent does that we fear even he will have little to say for the trees of fifty years ago.—A. H. H.

THE DISEASE OF CUCUMBER ROOTS.

I HAVE enclosed a Cucumber root for your inspection. If you can give me any information, through the medium of the *Journal of Horticulture*, as to the cause of the roots clubbing, I should be greatly obliged. I took charge of my present situation on March

25th last, and among the houses here there is a Cucumber house 36 feet long, 12 feet wide, with six rows of 4-inch pipes for top heat, independent of bottom heat. When I took charge there were a few old Cucumber plants in the house all clubbed like the specimen sent. I cleared them all out, cleaned the house thoroughly, raised a good stock of Cucumber and Melon plants, all of which grew well until they commenced bearing, then the roots began to go the same as the specimen sent. When each Cucumber plant had borne about six fruits I had to replace it, and so on all through the summer. The Melons went on all right until the fruit was as large as an Orange, when most of the fruits withered on the plants, and the roots assumed the appearance of the specimen. The soil I use is good fibry turf and old hotbed manure. The water that supplies the gardens is a large pond fed by rain water and drains from the land. On the 20th July I made my last sowing of Cucumber seed. I cleaned the house all through and filled it with new soil, and planted fifteen of the strongest of the seedlings, which grew well until a fortnight ago, when I began

cutting. The specimen sent is the third I have pulled up out of the fifteen. As I have always been very fortunate in the culture of Cucumbers and Melons, I am anxious to know the cause of them failing now.—W. J.

[The disease referred to by our correspondent has been figured and described in the Journal by Mr. Worthington G. Smith; and as the number containing the illustration and notes in question is out of print we reproduce them, as many other correspondents have desired information of late on this subject.

"The root-nodules in question are generally assumed to have a fungus origin, but the Rev. M. J. Berkeley long ago described the disease, and showed it to be caused by a parasite of another nature. The description he illustrated with the utmost accuracy. It would seem that the pest which causes the mischief is not always readily seen, or maybe it escapes into the surrounding soil, or, after working the mischief, perishes; but that it is sometimes difficult or even impossible to detect, Mr. Berkeley himself confesses. For our part we have frequently seen the interior of the nodules just in the condition described by Mr. Berkeley, with the parasites in all stages of growth, from the egg condition upwards.

"Our illustration represents on the left the diseased roots natural size, and on the right a thin slice through one of the nodules of the roots. The latter is an exact reflection from a camera lucida attached to the microscope, and shows the cellular tissue, A; pitted and spiral vessels, B; the worms coiled up in the eggs, C; worms emerged, D; and empty eggs, E, from which the worms have escaped. Mr. Berkeley refers these parasites to vibrios, which belongs to the infusoria (properly confervoid Algæ), common in foetid water, &c., and always, we believe, extremely minute in size; but it will be seen from our figure, which is enlarged 160 diameters, that the animals there shown are just over one one-hundredth of an inch long, whilst vibrios are ten times smaller, and do not arise from eggs, but increase by the formation of new joints and separation at the articulations. The parasite appears to us to belong rather to the oviparous section of the genus Anguillula, which includes the 'vinegar eel,' and except that it is only about one-half the size, it is very similar in all stages of growth to A. Tritici, an eel found infesting blighted Wheat.

"It is often complained that men of science cannot specify cures for the diseases they describe, but it should always be remembered that in regard to cures pathological botanists considerably resemble doctors of medicine. It does not follow that, because a doctor can tell by certain symptoms his patient may have Asiatic cholera or cancer, that he can therefore cure the disease; or because a fireman sees your house is being destroyed by fire, he can from that mere fact extinguish the blaze. Physic and water sometimes do wonderful things, and in the case of worms in the roots of Cucumbers, the best remedy is to destroy the plants and look to the compost, which probably harbours the parasites."]

A RUN TO THE WEST.

LONGLEAT.

HAVING on page 379 referred to some of the features of the gardens under Mr. Taylor's charge, and sketched his system of management generally, noting also briefly some leading points in his practice, a few other matters now demand attention. Autumn and winter flowers, it has been said, are in great demand at Longleat, and to meet that demand a great number of a few kinds that have been proved to answer the purpose best are grown extensively and well. Tea Roses, Carnations, Tuberoses, and Gardenias have been mentioned. Passing by Roman Hyacinths, which are largely grown, and Amaryllises, which are remarkably vigorous, also Eucharises and Celosias, there are a few favourites that merit special notice. Achimenes, for instance, are yet in full beauty, masses of them not more than from 6 to 9 inches high being covered with fine flowers. The varieties are Longiflora major, Grandiflora, which I never before saw so dwarf, Dazzle, and Williamsi. The tubers are wintered in the pots in the usual manner, started into growth as needed without being disturbed, and the tops of the young plants cut off and inserted as cuttings. It is thus the plants are kept so dwarf for fulfilling the purpose for which they are required in room decoration. A trio now to be referred to demand a little more prominence—namely, Pelargonium Guillon Mangilli, Begonia Knowsleyana, and Gesneras.

PELARGONIUM GUILLON MANGILLI.

Mr. Taylor detailed his experience of this variety last year in the Journal, and forthwith a demand was created for plants. If all the

readers of these notes could see the stock of Guillon Mangilli at Longleat now the demand for plants would be increased tenfold, or probably a hundredfold, for assuredly the display is a brilliant one. Mr. Cannell's magnificent winter display of thousands of plants in 6-inch pots, in a hundred or more of the best and most modern varieties, cannot of course be placed in comparison, as the conditions are essentially different in the two cases, the Longleat plants being chiefly large, huge bushes in 10-inch pots, and all aglow with hundreds of huge trusses. Last winter I saw plants somewhat similar of Vesuvius in the conservatory at Norris Green that made the Chrysanthemums look dingy; but bright and excellent as Mr. Bardney's plants undoubtedly were—in fact, they were as good as the variety could be grown—yet they were by no means so striking as Mr. Taylor's plants now under notice. This, the cultivator points out, is essentially a stove Pelargonium, and is precisely at home in a house with Gardenias, Eucharises, and Euphorbia jasminiflora. There are no signs of the plants being "drawn," but, on the contrary, they are as sturdy and vigorous as if growing in the open air in summer, only the colour in winter is more pleasing, the rosy purple of the upper petals being more clear and distinct, and the scarlet of the lower petals looking brighter by contrast, while the petals never turn mouldy and damp off. The question was asked, "How long will the plants continue producing such trusses?" The reply was, "For seven years if they have the proper heat and support," and the question of duration was settled. Mr. Taylor having tried most of the best Zonales has selected Guillon Mangilli as the king of the doubles for winter, and now he is trying to elect a queen, a white. At the present Amelie Baltet and Nymph are the most promising. If anyone can send him a really free-flowering double white variety for winter and they do not possess Guillon Mangilli, they will in due time receive a liberal supply of cuttings in exchange; and if they grow the plants as he grows them they will not be likely to part with the variety for some time. Strong healthy plants, a temperature from 55° to 65°, and a light house, are the conditions of success. Numbers of people have had this variety, but newer sorts have pushed it aside before its special merit was discovered. It is known now, and Mr. Taylor and Guillon Mangilli will be friends for a number of years—perhaps for life. We now pass on to note a striking contrast. Behind us is a glowing house of purplish scarlet, before us a gracefully drooping mass of white in the form of a row of plants of

BEGONIA KNOWSLEYANA.

Old but valuable is this Begonia. I have seen it occasionally in my travels, but its name was not known. At Longleat it was also nameless, but on a spray being compared with the varieties flowering in the fine collection at Kew its identity was determined, and now that the name of this useful variety is known the plant must be more largely grown; but it needs to be grown well to bring out its full beauty, and this fortunately is easy enough. At Longleat the plants are in 6-inch pots, and are about 18 inches high and the same in diameter. They are clothed with large drooping panicles of bluish white flowers, which show with great effect from the dark green foliage. The great value of this variety is its amenability for cutting. You can cut and come again for months, for as soon as a spray is severed others are produced with flowers from every joint. It appears to be a white form of B. insignis, and for winter decoration it is unquestionably worthy of attention. Now that the name is ascertained Mr. Taylor will probably tell us what he knows of this plant and describe his mode of culture. I think he said it came true from seed, but I am open to his correction on this point. Be that as it may, it is most useful, and must not be forgotten; neither must the equally useful and totally distinct B. semperflorens grandiflora, as grown at Marston. Another change to brightness again, but not yet so dazzling as the effect will be a month hence, for shortly there will be, about the time of the Royal visit, a right royal display of

GESNERAS.

Hundreds of these beautiful plants are grown—beautiful in foliage and brilliant in flowers. Only three forms are represented—G. zebrina with its rich velvety foliage and its loose spikes of orange-scarlet flowers. This is the first of the trio, and is commencing flowering, and will continue in beauty for a long time. Before it is over G. refulgens, with its dark plush-like foliage and closer spikes of bright flowers, will be in and last all winter; then succeeds G. cinnabarina, fiery in colour, handsome in foliage, and excellent in habit; its broad dense pyramidal spike rendering the plant most valuable for many decorative purposes, and the colour is highly effective under artificial light. Gesneras should be grown by all who have the means of growing them, for few if any stove plants are more strikingly beautiful from autumn until spring; they are also of easy culture. The tubers need potting during June, and the after-management of the plants, where potted in good soil, consists chiefly in careful watering. Handsome plants can be grown in 5 and 6-inch pots, and these pots are generally employed at Longleat, but for certain purposes larger plants are required, and more pot room is given accordingly.

ROOM AND TABLE DECORATION.

Mr. Taylor has no conservatory to keep gay, but the mansion must be regularly furnished with plants, and not a few are requisite for furnishing it effectively. On this, however, it is not necessary to dwell, and the subject is alluded to for the purpose of noticing the style of table decoration that is adopted. It may be termed the

rustic style, the receptacles for plants being made in the garden. They are like Orchid baskets in miniature but in various shapes, the wood employed being about the thickness of an ordinary pencil. It consists of young growths of some of the *Spiræas*, and yearling shoots of Vines. Maple half an inch in diameter and with rough bark is also used for larger baskets. Another simple method is to cut the stems of young Larches into lengths of 4 inches, then bore a hole through each with a bit and gonge out the rest of the wood, leaving about a quarter of an inch all round; a piece of zinc is nailed over one end, and the miniature rustic vase is complete. Numbers of these baskets and vases are made, and small Ferns and other suitable plants placed in them, and they are more admired on the table by Lord and Lady Bath and their distinguished guests than more showy vessels of glass, gold, or silver. The really great can afford to enjoy simple homely tastes, and they do not, in the Sir Georgius Midas and Ponsonby de Tomkyns style, estimate the beauty of an article by what it costs. I pass now to a greater subject, and what is beyond question the pride and glory of Longleat Gardens.

THE VINERY.

It is easy enough to describe a garden, any clerk or schoolmaster can do that; but to do so usefully is another matter. And although I may fail in this, I would impress on others more competent in writing descriptions of places not to exhaust their talents in a flowery glossing-over of the results on the surface, but endeavour to go deeper and find, if possible, the causes of good effects or of failures; or at least to scatter a few good seeds that may be gathered by the way, for there is always ground waiting for their reception.

Much as there is to admire at Longleat, and well as are the different departments of the garden conducted, the great vinery overshadows all. It is a span-roofed structure standing on a wall of about 3 feet of brickwork, with side lights opening all the length, and a lantern in the ridge with two rows of side lights there also. Ventilation is thus amply provided for. The house is 216 feet long and 30 feet wide in the clear. It is not very lofty, the height being about 13 feet to the base of the lantern, which is 3 or 4 feet higher. A broad path runs along the centre, with pillars at intervals along each side, connected by semicircular arches over the path. The house is thus very strong, while at the same time it is light. It was built by Mr. Buckenham, the clerk of the works at Longleat, and the structural part was designed by him. The condition of the house testifies to his skill and competence, which have certainly not been exercised uselessly, but the skill of the cultivation of the Vines is at the least equally prominent, and the noble owner has just reason to be proud of the combined work of his servants. The heating was done by Messrs. Weeks, and is very satisfactory.

The border is about 3 feet deep, entirely inside. Ample drainage was provided, and freshly dug turf was, as has been previously stated in the Journal, put together like so many bricks; only no mortar was used, a very slight sprinkling of boiled 1-inch bones, about a handful to a cartload, being all that was mixed with it. The borders are quite hard, as bedding *Pelargoniums* are wintered on them, and other plants in pots are accommodated there, according to requirements, Mr. Taylor knowing very well that the plants do no harm to the Vines—indeed thousands were in the Muscat house when the grand crop was ripening and finishing so well. Besides, the borders are trampled on continually for dressing the Vines, not only by the chief but by his “boy Joe,” this being Mr. Taylor’s skilled and trusted foreman, who is in excellent keeping with the house and Vines, as he weighs about 17 stone. Many readers will remember it was almost a crime to step on a Vine border without using a board; but these notions are gradually vanishing, as it is being found out that the roots of Vines will not, cannot, take possession of a mass of light loose surface soil; but they come to the surface in this hard border, as may be seen readily enough when the *Pelargonium* boxes are moved, and the fibres, ever multiplying, spread in all directions, and no food escapes them. In light rich borders it is otherwise, for their strong, straight, fibreless roots pierce through the soil like driving a skewer through a bread loaf: hence the very luxuriant canes we sometimes see, and large but not thick leaves and small fruit. Such Vines, however, often come right in time, especially if they are not too severely pruned. But it must be remembered, that while firmness and adhesiveness may be regarded as synonymous terms as applied to cement, they are not as applied to Vine borders, which can and should be firm without being adhesive. So much for the borders, and now to the Vines.

The Vines were raised from eyes in the spring of 1870, and planted about 7 feet apart during the summer of that year. They grew strongly, and were allowed to bear fruit, to check over-luxuriance, the first year after planting. They continued growing vigorously and cropping heavily until 1874, when it became a question of persisting in the practice of mutilating them, or removing some and letting the others extend. Some moral courage was requisite in removing Vines that were bearing so well, but still a few of them were removed, and the end Vines were allowed to extend by training the main rods horizontally, and taking canes from them up the roof. The wisdom of the step was soon apparent, for the fruit on the restricted rods that still remained was clearly inferior in both size and colour to that on the others; therefore the extension Vines were encouraged to extend still further, and more of the restricted rods were removed to make room for them. At present there are just

fourteen Vines left out of about seventy that were planted. The house is in three compartments. The north compartment, which is 58 feet long, contains five Black Hamburgs; the south compartment, which is some 20 feet longer, is occupied by two Alicantes, two Lady Downes, and one Mrs. Pince; the middle compartment, 80 feet long, is filled with four Muscats. The house is not wired in the ordinary manner, but an arched trellis is formed, starting at 2 feet from the glass at the base of the rafters on each side, and passing overhead 8½ feet from the ground. These four Vines therefore cover nearly 3000 superficial feet of trellis, from every part of which hang noble bunches, producing many berries 1½ inch long and 1½ inch in diameter; but these do not altogether quite satisfy the cultivator, yet as they increase in size yearly it is to be hoped they will do so shortly. They would satisfy most people now, and do satisfy those, as a rule, who see them and eat them.

It was of the Muscat and Hamburg compartments that a correspondent, who is unknown to me, wrote on page 363 that it was “the finest sight he had seen, or would perhaps ever see again.” Although it is the finest sight of the kind that I have seen it is not the finest I hope to see, as I intend, if spared, to go to Longleat again when Mr. Taylor has grown Muscats to his satisfaction. He knows they have a fault, and he knows also the cause and the remedy. When he made the border he was not aware the soil did not contain a particle of lime, and there is not a trace of that mineral in the water of Longleat. This accounted for the defective stoning of the berries. By making good the defects of the soil, and adding lime and potash, he is surely overcoming the difficulty, and finer berries follow as a natural result.

The Black Hamburgs are all cut and bottled; they are of the first size and quality, while the colour is not only as dense as it can be on the fruit, but has crept up the footstalks. Many but not all the footstalks are coloured, and there is no mistake about these Grapes with coloured footstalks being decidedly richer than those with the ordinary green footstalks. This colouring of the footstalks is not a common occurrence; wherever it is seen it is evidence of good culture, and the Grapes under notice were of the highest quality.

The Grapes in the late compartment are less striking than the others. Larger bunches of Alicantes I have often seen, but never better finished berries. Lady Downe’s has berries decidedly above the average, and the bunches are good. Mrs. Pince is splendid in bunch and berry, but not quite coloured as it should be. Want of colour is the great defect of this Grape, but Mr. Taylor is convinced it will improve—is improving—with age. He states, and few people can speak with more knowledge on the point, that the constitution of this Vine was broken by over-propagation when it was first introduced. At that time Mr. Taylor was Mr. Meredith’s right-hand man, and had “something to do” with the Garston Vines when they were in the zenith of their celebrity, and he knows how great was the demand for Mrs. Pince, and how they had to go on topping and striking as fast as growth was produced to meet it. No Vine, he asserts, could endure such treatment without being seriously weakened, yet he is convinced that Mrs. Pince will in time be restored, and prove what it really is, a splendid Grape—a little more colour and it would be splendid at Longleat.

I had the curiosity to take the dimensions of one of the Vines under notice. It was not selected, but was the first at the end of the house which I happened to enter—a Black Alicante. Taking the length of the horizontal rod and the nine rods that arose from it at intervals and were trained up the roof, we found a total length of rod of 250 feet. “What sort of rod?” does someone ask? Well, such as is not common in Vines eleven years old, as just above ground the stem girthed 16½ inches. Nor was this the thickest stem, for one of the Muscats girthed 18 inches. These, then, are the Vines of which I ventured an opinion last week, that a similar example of culture had not been achieved in the time in the Queen dominions. In that opinion I must rest until proof is adduced to the contrary. When the house is entered and you pass under the arch of Grapes, all so near the eye, and see the timber-like stems in the corners and the horizontal rods trailing along the front like huge cobras, the sight is a truly remarkable one, and it shows what Vines will do when they have the chance.

Nor are these Vines tenderly nursed and pampered. They have never been syringed and never been peeled, and yet there is not an insect of any kind on them. Red spider could make no impression on foliage so thick, thicker than leaves of Figs, and which crumples like stout brown paper. The mere size of the leaves does not astonish, but their substance is wonderful. No doubt this is rightly attributed to comparatively low night temperatures. What these are is recorded on page 375; and that Muscats will ripen in Wiltshire under these temperatures the crop shows conclusively, for fine indeed the Grapes are, and superbly finished.

The growths of the Vines are trained thinly; the sun can shine on every leaf, and air can circulate freely between the foliage and the glass, the trellis being 2 feet from the roof at the bottom, and quite 4 feet at the top of the house; let this ample foliage space be a lesson. Laterals are preserved on the Vines down to the ground for thickening the stems and providing free sap channels; let this also be a lesson. In fact the non-peeling, non-syringing, non-steaming, and free-growing systems are all lessons, and sound lessons too, for they are derived from one who has shown their value by a striking and unequivocal example of success.

THE FLOWER GARDEN.

I have no space left to dwell on this, and can only say it is near the mansion, and that forty thousand bedding plants are employed, and fine herbaceous borders are admirably furnished and managed. Verbenas grow like weeds—Crimson King and Purple King. "They will not grow in my soil," say hundreds in sadness. But perhaps they would if William Taylor prepared the plants. "A puff at last," I think I hear a whisper. But wait for evidence. I have a garden in London, which is certainly not a Verbena city; and soil as light almost as leaf mould and poor, which is certainly not a Verbena soil. Still I tried some Verbenas from three sources, but the plants from two of them lingered and died, while the dozen kindly sent by Mr. Taylor grew with the greatest freedom, and flowered until frost destroyed them. This is a simple fact which readers can deal with as they think proper; for myself I intend turning it to account by asking for a few more Longleat Verbenas. The only scarlet bedding Pelargonium grown at Longleat is Triomphe de Stella, Vesuvius not being nearly bright enough.

THE PARK.

After a drive through the finely timbered and deer-stocked park, in which the trees and roads are kept so well by Mr. Berry, we creep up the bold Beech-clad promontory and stand in "Heaven's Gate." The view below is indeed grand. The mansion, two miles distant, is in the lowest position in the park. The monks—shrewd men—always chose fertile soil near a stream of water, and a monastery once stood where Longleat stands now. The ground rises from it on all sides—a vast amphitheatre of foliage bounded by the horizon. I said last week that Longleat is "open, grand, and free." It is so literally, for the grand park and mansion are open and free to all, and thousands annually enjoy and doubtless appreciate the privilege so generously accorded. A further enjoyable drive of two miles to Warminster, then a pleasant hour with Mr. Hinton—a man who engages in many good works besides the Rose election—and I am switched back to town by the night express, well pleased, and also, I think, benefited, by my "Run to the West."—J. W.

P.S.—It may perhaps be useful to state that an engraving of the Longleat mansion may be found on page 10, vol. xxiv., the issue of July 3rd, 1873; a view of the large vinery on page 125, vol. xxvii., the issue of August 6th, 1874; and an engraving of the Vines on page 535, vol. xxxi., the issue of December 21st, 1876; but the Vines are, of course, very much larger now. Interesting and useful notes accompany the above engravings.

STRAWBERRIES FOR TABLE DECORATION.

VISITORS to Cranmore Hall, the seat of R. J. Paget, Esq., M.P., are invariably delighted with the fine plants of Vicomtesse Hericart de Thury, specially prepared by Mr. Moore for the dinner table during the shooting season. We have never seen them grown more successfully even in the spring months, and they well repay the extra trouble taken. The plants for the first supply had been previously forced, the fruit ripening in March, and were afterwards hardened-off and kept watered. About the middle of May they were plunged deeply along the side of a walk, and encouraged to root over the sides of the pots into the surrounding soil, water still being given when required. By the middle of September the plants were lifted, having all outside roots cut away, and placed on a cool airy shelf in Peach house. They are stood in saucers, and these being kept filled with liquid manure no other watering is required, sufficient moisture being soaked up. Six-inch-sized pots are employed. The plants are crowded with good-sized fruit, ripe and unripe, the bunches being supported with a few neat stakes, and in most instances measure fully 15 inches across. Later batches are prepared in precisely the same way, but those for Christmas especially are ripened on a warmer but equally airy shelf. Placed in wine-coolers they are very effective decorative plants, and, of course, the fruit forms a welcome dish at that period of the year.—W. I.

THE ARRANGEMENT OF CUT FLOWERS.

A PURPOSE and plan in the arrangement of cut flowers is essential, not only as regards the work itself, but even more so in the economical use of flowers. A clear conception ought, therefore, to be had beforehand of what we have to do, how it is to be done, and of the quantity and kind of flowers required. Be very sure it by no means follows that the man who has the command of an unlimited supply of flowers is the most successful; he who has to cut and contrive has his wits sharpened, and learns of necessity how to turn many odds and ends to account that would probably otherwise be overlooked, and really it is surprising how few and simple are the materials requisite to make a room or table bright. Take, for example, three or four leaves of *Ampelopsis Veitchii*, rich in colour as they now are, a frond or two of any favourite Fern, one cluster of Japanese Rose berries with the deep green foliage, and a white Rose or two,

Mrs. Bosanquet for choice. With these the vase for our sitting-room is made bright with colour—colour which is attractive and pleasant, because it is subdued and balanced by the other quieter features and in keeping with the most refined surroundings.

Such arrangements of foliage and blossom taken each in its season are always acceptable and tend to the economy of materials. At the present time the various kinds of autumnal foliage and berries afford so much variety that very little blossom is required. *Ampelopsis Veitchii*, especially, is so beautiful in its many rich and varied tints of colour that we never tire of it, but rather regret that the season of its beauty is so brief. What lovely wreaths and scrolls may be made upon a tablecloth among the dishes with its slender shoots, and how useful such shoots are for other purposes! I have lately again turned them to good account for chandelier decoration. The arrangement consisted of the usual globes of clear glass containing white Roses, medium-sized highly coloured leaves of *Ampelopsis*, and small fronds of Maidenhair Fern. Long slender *Ampelopsis* shoots hung gracefully downwards from each glass, and were intertwined and festooned in a light informal manner. Another and bolder way of using it is to make a wreath of the large leaves just inside the circle described by the globes of the chandelier, and to have sprays with smaller foliage pendent from the wreath in a graceful but irregular manner.

To further illustrate what has been said about economy I may describe my last dinner table. It was a small circular one, having a cup and two tall water-jugs in the centre, and afforded space for a circle around the centre of eight slender vases, four of which had white Carnations, and four had half-opened flowers of Madame Falcot Rose for blossom, two flowers and a bud or two being used for each vase, with a leaf of *Ampelopsis*, two large leaves and a spray of *Pelargonium filicifolium odoratum*, three spikes of dried *Briza minima*, and two of the long slender shoots of the *Ampelopsis* pendent from opposite sides. The Roses and Carnations were placed alternately in the circle of vases, and instead of being festooned the *Ampelopsis* shoots were lightly interlaced outside the vases, the effect being novel and pleasing.

Soon after the autumn Violets became abundant I was requested to make a floral wreath for a grave. A ring of a foot in diameter was made of a couple of hazel sticks nearly as large as one's finger, and a thick coating of fresh moss was tied upon it. It required eleven bunches of Violets, three dozen Roses, and a suitable proportion of shoots of Oak-leaved *Pelargonium* and Maidenhair Fern. The difficulty in making such a wreath is to avoid formality. Bearing this in mind, the Violet bunches were not placed in a formal circle along the centre of the wreath, but upon the outside and inside at irregular intervals, with Roses and foliage clustering between, around them, and along the centre. Mrs. Bosanquet half opened, and Gloire de Dijon fully expanded, were the Roses used, a few fine Gloire de Dijons being put on singly with a suitable foil of foliage as a relief to the clusters of the lighter-coloured Rose. Fresh green damp moss was plentifully used among the flower stems as they were bound securely in position. When finished the wreath was about 16 inches in diameter. It was sent a considerable distance by rail in a circular wooden box, being fastened securely for the journey by fine string drawn through holes in the bottom of the box; a sheet of tissue paper was placed over the top beneath the lid to keep out dust, and the lid fastened securely kept the paper from contact with the flowers.

Violets of the blue shades of colour do not look well by lamp light, yet as the fragrance renders them much in request for the dinner table, all that is possible must be done to relieve the heavy dull look which they have at night. White China figures of animals laden with panniers filled with Violets have been used occasionally. Wreaths of Violets around the bases of cups and vases afford the much-liked perfume, and are comparatively inconspicuous. White Roses and Violets were the flowers lately chosen by a lady for a birthday dinner. I had only the common Russian in sufficient quantity for the purpose, and its flower stems are much too short to arrange with Roses. The difficulty was overcome by mingling tall stands of Roses with low stands of Violets and white Begonias. Such large flowers with long stems as The Czar and Victoria Regina tied up in medium-sized bunches form an admirable mixture with the rich yellow flowers of Maréchal Niel Rose for every purpose to which cut flowers are applied. It is just one of those rich combinations of which we never grow tired.—EDWARD LUCKHURST.

MR. LUCKHURST's recent articles on the arrangement of cut flowers will, no doubt, be justly valued by gardeners generally; still I think the remarks of "R. I. L.," page 271, and "Hortus," page 307, are too severe on gardeners. "Hortus" remarks,

"There is, as a rule, an absence of taste amongst gardeners, simply because they do not take the trouble to cultivate taste for artistic gardening." I do not think there is such a lack of taste amongst gardeners as your correspondent would have us believe; we rather think the true causes of bad floral arrangements are to be found in other directions. In a considerable majority of cases the gardener has not the sole control of the floral decorations. It is very well to write where and how dishes and glasses are to be placed, but it is often the case that when a gardener takes his flowers into the house he is told by others where they are to go. The butler thinks this would be pretty here, the housekeeper thinks it would be better there, and in the end the arrangement is anything but what it was first intended to be. Again, what one lady or gentleman would admire another would not like at all. For instance, Miss L. likes the Maréchal Niel Roses arranged all on one flat dish simply intermixed with Ferns. Master T. abhors such an arrangement, and the gardener, anxious to please, finds himself beset with difficulties on every side. I know establishments where the butler arranges the flowers, others where the housekeeper does it, and one—not a small establishment either—where the governess both cuts and arranges the flowers. These are not cases where the gardeners are not capable of doing the work, but because they have not the opportunity. How many ladies, too, arrange the flowers themselves? We believe that if the floral decorations were left more in the hands of the gardener we should see much better results.

Mr. Luckhurst will pardon me for adding to his already extensive list of requirements for the flower-room. Let a close-fitting shutter be provided for the window, so that if necessary daylight may be excluded while arranging flowers for evening parties. I have found that if flowers are arranged by the same light as that in which they are to be used much better results may be obtained, as it is well known that some colours which look well by daylight will spoil the whole arrangement when seen under artificial light. In conclusion I will add that the less hard-and-fast lines we admit in the arrangement of cut flowers the better, but the following I would recommend: Avoid glaring colours, let white predominate; use a good proportion of light green foliage, and do not crowd the flowers.—W. PLANT.

THE HEREFORD FRUIT SHOW.

To pomologists Hereford is the Mecca where their annual pilgrimage is made, and it is certainly well worthy of the distinction, and the visitors increase in number and become more enthusiastic every year. I can heartily congratulate the members of the Woolhope Club on the success of this year's Exhibition, which was held on the 26th and 27th ult., when two thousand plates were staged, but with such leaders it is not to be wondered at. It is to be hoped that good may follow these annual exhibitions in greater efforts being made in the county for successful fruit cultivation, for Hereford is certainly behind both Kent and Middlesex. The soil is peculiarly adapted for fruit culture, and after the magnificent display of Blenheim Pippins and King of the Pippins exhibited this year it would be impossible for anyone to detract from the merits of the county as suitable for improved culture. In travelling through Kent or Middlesex during the last few years visitors have been astonished at the numbers of acres recently planted with fruit trees, but this is not the case here.

On entering the rooms of the Woolhope Club the visitor was struck by the general effect caused by the blending of colour of the different varieties of Apples, well arranged on suitable tables covered with red and green cloths, the cider Apples being especially notable. Nearly every class was well contested, and in some it was very difficult for the Judges to give a decision, the class being so good; this was notably the case with Blenheim Pippins, where out of the thirty-six plates exhibited twenty-six would have taken the first prize at any average show.

In the open class for dessert Apples, fifteen varieties, Mr. Haycock, gardener to Roger Leigh, Esq., M.P., Barham Court, Maidstone, took the first prize with a beautifully even collection, consisting of the following well-known and good varieties—Sam Young, Lord Burghley, Margil, Brownlee's Russet, Mannington Pearmain, Cornish Gilliflower, Court Pendu Plat, Calville Blanche, Cox's Orange Pippin, King of the Pippins, Ribston Pippin, Melon Apple, Reinette Grise, Mother Apple, and Reinette du Canada. In the other collections were good plates of Pearson's Plate, Old Pearmain, Ashmead's Kernel, Court of Wick, and Fearn's Pippin. I think Court of Wick must be profitable, for it is ubiquitous, and has a habit, which I have noticed in previous years, of appearing under different names in many of the classes, and one especially—the Golden Harvey. In the collection for culinary Apples the first prize also went to Kent with the following eighteen varieties—Bedfordshire Foundling, Blenheim Pippin, Tower of Glamis, Round Winter Nonsuch, Lewis's Incomparable, Loddington, Warner's King, Wellington (Dumelow's Seedling), Lord Derby, Minchall Crab, Hollandbury, Golden Noble, Striped Beefing, Beauty of Kent, New Hawthornden, Emperor Alexander, Cox's Pomona, and Lady Henniker. I may mention that the Loddington,

which usually creates a sensation when well exhibited, and was supposed to be unknown in Hereford, was shown twice, in one case taking the first prize for cottagers' fruit. In the other collections were good specimens of Dr. Harvey, an Apple worthy of notice, and apparently identical with the Wormsley Pippin; Broadend, Summer Queen, Waltham Abbey Seedling, and Alfriston.

In the class for fifteen varieties of dessert Pears Mr. Haycock was first with one of the best collections I have ever seen, including the following well-known varieties—Easter Beurré, Van Mons Leon Lelerc, Passe Colmar, Beurré Superfin, Doyenné du Comice, Duchesse d'Angoulême, Maréchal de Cour, General Todleben, Marie Benoît, Pitmaston Duchess, Beurré Hardy, Durondeau, Brown Beurré, Beurré Diel, and Emile d'Heyst. Mr. Young, gardener to Sir H. Scudamore Stanhope, Bart., was second with an excellent collection, including, with others named above, good specimens of Flemish Beauty, Beurré Sterckmans, and Beurré d'Aremberg. In the division for amateurs the first prizes for both kitchen and dessert for nine varieties went to Mr. Haycock. The kitchen varieties consisted of the following kinds—Lord Derby, Bedfordshire Foundling, Belle Josephine, Belle Dubois, Reinette du Canada, Peasgood's Nonesuch, Emperor Alexander, Belle Dubois, Loddington, and Warner's King. In Sir H. Stanhope's collection that obtained the second prize were good Blenheims, Alfriston, Emperor Alexander, and Wormsley Pippin (the latter Apple I say with Captain Cuttle, "When found make a note of it.") In the other classes were many good plates, but they were chiefly repetitions of varieties named above.

In some classes the Judges had a very invidious task—notably where the Apples were exhibited "for flavour." The entries were very numerous, and in many cases ridiculous. In giving a decision of course the period of ripening is the matter under consideration, and if a fortnightly show were held a different variety would naturally take the prize. The early varieties were of course out of the race, but the winners with Cox's Orange Pippin were run very closely by plates of Margil and Cornish Gilliflower. The Ribston Pippin, in comparison with the others, was too hard in texture.

In the class for weight this year there was a notable falling-off, accounted for, I suppose, by the quantity grown. The heaviest Apple exhibited was a Warner's King, 1 lb. 3½ ozs. Hereford usually produces this Apple in grand form, but this year was an exception. I wish some of my friends the nurserymen would tell me the reason they describe it as a November Apple. The second week in October I have always found the latest time it could be eaten, although it may be shown at Christmas. The old Pearmain was well shown by Herefordshire growers, but with Cox's Orange Pippins they had no chance with the Kentish exhibitors.

I think perhaps there may be an alteration in the class for Seek-no-furthers. Many growers think this Apple is different from the King of the Pippins, but the distinction is impossible to prove. It was exhibited under six different names, and in many cases justly disqualified by the Judges. Messrs. A. F. Barron and Rivers acted in that capacity, and their awards were more thoroughly appreciated than is usual at horticultural exhibitions, but the names are sufficient to prove that the confidence in their judgment was well warranted.—L. A. K.

[Our correspondent has omitted to say that Mr. Killick was awarded amongst other prizes the second honours for fifteen dessert and the first for fifteen culinary Apples.]



WE learn that there is likely to be keen competition for MESSRS. SUTTON & SONS' PRIZES FOR VEGETABLES at the meeting of the Royal Horticultural Society on Tuesday next. Messrs. Sutton will exhibit vegetables largely, and a fine display of Apples is expected from the Kentish growers.

— AT a meeting of the Committee of the CANTERBURY AND EAST KENT ROSE SOCIETY, held at the Rose Hotel on Saturday last, it was determined that the Exhibition for 1882 should be held at the Corn Exchange, Canterbury, on the first Thursday in July.

— MR. E. R. CUTLER writes as follows concerning the Pension Augmentation Fund of the GARDENERS' ROYAL BENEVOLENT INSTITUTION:—"Up to this date the number of the contributors to this fund is 426, and the amount that has been received is £509 7s. 4d., giving an average of £1 3s. 10d. each response. The Committee have decided to close the list for this year on the 15th

November, and they will be greatly obliged by all collecting cards being sent in to me on or before that day."

— WE are informed that Mr. J. Caven Fox has been appointed agent for the sale of objects that will be exhibited in the SMOKE ABATEMENT EXHIBITION that will shortly be held at South Kensington. All communications relating to the sale of objects should be addressed to Mr. Fox as soon as possible at his office, East Arcade, Royal Horticultural Gardens.

— WE hear that two of MESSRS. J. WEEKS & CO.'S HYDRO-CALORIC WARMING AND VENTILATING COILS have been attached to the existing warming apparatus in the grand saloon at Sandringham, for the purpose of improving the somewhat defective ventilation of that apartment.

— THE *Journal of Forestry* for the present month publishes nearly a hundred letters from all parts of Great Britain, showing the effects of the GREAT STORM OF OCTOBER 14TH in parks, plantations, and woods. The violence of the wind appears to have been general, and in many places the results are disastrous. It is stated that "the damage done to the Tynninghame policies of the Earl of Haddington cannot be less than £50,000."

— AMONG the novelties in vegetables that will be sent out in the ensuing season by Messrs. Sutton & Sons of Reading, a distinct main crop Pea of their own raising, and which they have tested for four years in their grounds at Reading, will be included under the name of "President Garfield." We also understand that Messrs. Sutton have purchased the stock of the fine white-spined Cucumber which was awarded the first prize at the Manchester International Horticultural Exhibition, and which we believe will be sent out as "Suttons' Victory of Manchester."

— WE have received the second volume of BULBS AND BULB CULTURE, by Mr. D. T. Fish (London: The Bazaar Office, 170, Strand), which gives exhaustive cultural notes upon the Cyclamen, Dahlia, Gladiolus, Iris, Ixias, Lachenalias, Ranunculus, and Scillas. From these it will be seen that the author has by no means confined himself to bulbous plants only, as the title of the work would imply. Several of the woodcuts are badly executed, especially *Iris lusitanica* and *I. Kämpferi*. A good representation of *I. Histrio* is given, but under the erroneous name of *I. Niphium*. The book is neatly printed and bound in cloth.

— WE regret to announce the DEATH OF G. J. JOAD, ESQ., OF OAKFIELD, WIMBLEDON PARK, which occurred on the 24th ult. Mr. Joad will long be remembered as an ardent lover of plants, especially of the hardy herbaceous and cool house sections, of which he formed an extensive and interesting collection, many rare alpine being collected personally in his annual continental tours. His delicate health had for some years rendered it necessary to seek a warmer climate and clearer atmosphere on the approach of winter, but this year he was too unwell to undertake his usual trip. Mr. Joad was a Fellow of the Linnæan Society, and last year was elected member of the Scientific Committee of the Royal Horticultural Society.

— AN Isle of Wight correspondent sends us some sprays of *BACCHARIS HALIMIFOLIA*, the "Ploughman's Spikenard" or "Groundsel Tree," as it is popularly denominated, and remarks upon its hardiness and the way in which it thrives near to the sea—in fact, exposed to the spray. As inquiries are often received respecting shrubs or trees suitable for cultivation near the sea this hint may prove of value to some. The shrub is not strikingly attractive, but it grows freely and produces its small white or purple-tinted Groundsel-like flower heads in great numbers late in the autumn. It attains the height of 10 feet or more in favourable situations, and grows very

quickly. The leaves are small, 1 to 1½ inch long, and of a slightly glaucous tint. The species is a native of North America, being found upon the coast of Florida and neighbouring States.

— THE annual EXHIBITION OF CHRYSANTHEMUMS IN THE INNER TEMPLE GARDENS was opened last week, and will doubtless attract many visitors during the present month. The old position has been forsaken, and a new one chosen near the Victoria Embankment, where a convenient glass structure has been erected. It is built against a wall, forming two sides of a square; and thus, though a larger number of plants are employed, the effect is not quite so striking as it was in the old structure, where all the plants could be seen from one end. There is a good show of buds, the plants being in satisfactory condition, and some of the early Japanese are already attractive. Several handsome blooms of James Salter are notable, with Elaine, The Cossack, and Gloire de Toulouse. The incurved varieties are not quite so forward, though Mrs. George Rundle and Mr. Bunn are fairly advanced. The arrangement has been carefully superintended by Mr. Newton and with good results, which, however, will be more evident in a week's time when the flowers have expanded.

— A SIMILAR display of CHRYSANTHEMUMS IN THE MIDDLE TEMPLE GARDENS, under the charge of Mr. Snelling, also deserves a note. About five hundred plants are arranged in the long glass structure described last year when referring to the first display. Most of the best varieties are represented by healthy plants, which are bearing abundance of stout promising buds. When at their best no doubt the general effect will be considerably better than last year, a satisfactory improvement being observable in the condition of the plants and the arrangement.

— IN the fine collection of ORCHIDS AT THE FIRS, LAWRIE PARK, SYDENHAM, there are always some of interest or beauty in flower, but at the present dull season the brightness of colour and diversity of form presented by the flowers of Orchids are especially pleasing. In one of the houses *Lælias*, *Oncidiums*, *Pleiones*, and numerous plants of *Vanda cærulea* produced a most charming effect. The beautiful blue *Vanda* was represented by several uncommonly fine varieties with broad sepals and petals, and possessing a great depth of colour. *Pleione Wallichii*, *P. maculata*, and *P. lagenaria* were flowering profusely, their bright rosy crimson and white flowers clustering just above the soil in pans and shallow pots arranged along the edges of the stages. *Lælia autumnalis atro-rubens*, the same handsome variety as that recently exhibited at Kensington by Mr. W. Bull, was flowering excellently, the crimson colour of the flowers being remarkably rich. The showy *Oncidium Rogersii* was flowering freely, the flowers having unusually large bright yellow labellums. Many other handsome and useful Orchids were flowering, the healthy condition of all indicating the attention they receive from the gardener, Mr. Coningsby, who well understands the requirements of such plants.

— THE first on the list of COMING CHRYSANTHEMUM EXHIBITIONS is Richmond, which is fixed for Thursday, the 10th inst., and though the date is somewhat early no doubt a satisfactory show will be produced. We may remind our readers that Mr. G. Eyles, Lesham Villa, Kew, has succeeded Mr. H. Chancellor as Secretary to this Society. Croydon and Stoke Newington follow on Monday, the 14th inst., the schedules indicating provision for the various sections similar to previous years. On the 15th inst. Exhibitions are to be held at the Brighton Aquarium, and by the Walton and Weybridge Society, the latter being noted for the excellent quality of the exhibits generally. For the 16th there were two fixtures—one, Finsbury Park, which, as was intimated last week, has been deferred to next year; the other is at Bristol. On the next day, the 17th inst., three notable Exhi-

bitions are to be held—Kingston-on-Thames, Westminster Aquarium, and Brixton. At Kingston the competition for the twenty-five-guinea champion challenge cup will undoubtedly attract much attention. The winners in the two preceding years were Mr. G. Harding, gardener to T. Golburn, Esq., Putney Heath; and Mr. W. Tunnington, gardener to Chas. MacIver, Esq., Liverpool. Should either of these win it this year it will become his property, but if another competitor should succeed in obtaining it the competition next year will be confined to those three.

— A WRITER in an usually very practical journal, who appears to know all about the subject, is good enough to inform us that the article on TREES NEAR TOWNS that recently appeared in a daily paper, and on which we commented on page 314, was not a burlesque. We did not assert that it was; but let that pass, although the disclaimer is no compliment to the author of the remarkable effusion. Special articles in the daily papers are usually contributed by those who have special knowledge on the subjects on which they write, and this is undoubtedly a prudent course, seeing the great influence the leading journals exert; but when a writer, as our friendly critic admits, "displays a want of practical knowledge on the subject," he simply states the incompetency of the writer as a sound instructor; and when the writer draws "upon his fancy and admiration," and denounces the Plane as a suburban tree, and extols the Elm, the late storm may be left to supply the answer as to the soundness or the danger that attaches to such teaching. The defence of nonsense is not a pleasant task, and those practical individuals whose good nature prompts them to undertake it merit sympathy.

— UNDER the title of "FRUIT FARMING FOR PROFIT," a very instructive manual has been sent to us. The author is Mr. George Bunyard of Maidstone, who has produced an unassuming work of considerable practical value. Having spent a lifetime in the study of hardy fruits, and had the advantage of gathering information in the orchards and fruit gardens of Kent, Mr. Bunyard has enjoyed special facilities for acquiring sound knowledge on the subject, and this he has placed before his readers in a plain manner, easy of being understood. After alluding to the uncertainty, as a profitable pursuit, of market gardening by farmers, and the superiority of English fruit over foreign produce, the author has prepared useful chapters on soil, situation, and shelter for fruit trees, planting, and pruning; then follow separate chapters on Apples, Plums, Pears, Cherries, and bush fruits of all kinds, with carefully selected and descriptive lists of varieties. Serviceable hints are given on the purchase and propagation of fruit trees, and packing fruit for sale. There are articles also on the probable profits of fruit culture, including the cost of planting and maintenance, also on the enemies and diseases of fruit trees, and approved methods of dealing with them. The work concludes with an appendix in the form of a report of a meeting of the Rochester Farmers' Club, at which fruit culture was discussed by members who have had much experience on the subject. In the preparation of this pamphlet of seventy-nine pages Mr. Bunyard acknowledges his indebtedness to Mr. Whitehead's work on "Fruit-Growing in Kent," (Effingham Wilson); and "Small Farms—How They Can be Made to Answer by Means of Fruit Culture," by Rev. Canon Lea, published at our office, and these works he recommends. We recommend them too, together with the manual under notice, to all interested in the important subject of profitable fruit culture. The manual to which we have directed attention is published by Messrs. Frederick Bunyard of Maidstone, and Edward Stanford, Charing Cross, London.

BULBS *versus* MICE.—As I have lost all my Tulips and part of my Crocuses the last two winters with mice I should be glad to know

how I can prevent their doing the same damage this winter. I have thought of trying paraffin as with Peas, but I am afraid it may destroy the bulbs. Perhaps some of the readers of the Journal will kindly give me advice, founded on experience, on the matter. Any information that will enable me to save the bulbs will be valued.—S. B.

DENDROBIUMS.

PLANTS of *Dendrobium nobile* that finished their growth early and had them well ripened are now showing signs of flower. The little buds that were scarcely perceptible a week or two ago are pushing from nearly all the joints, and the plants can be removed to a warmer house in order to hasten them into flower. I find it a good plan now to give the growths occasionally a slight dewing with the syringe in order to soften their buds, care, of course, being taken not to allow the roots to become too wet, as they are very liable to start into growth prematurely. Anyone who has a few plants of *Dendrobium nobile*, and, in fact, any other species of that section, may, with a little care, have a display of flowers for a long season. It is, perhaps, the best plan to have only medium-sized plants for decorative purposes and cutting, but if for exhibition plants of a larger size will be desirable. After one or two plants have been introduced to warmer quarters, the others, or later plants, should be kept dry and cool till such time as they are required to flower. There are several very distinct varieties of *D. nobile*, and one variety, called *D. nobile pendulum*, has perhaps one of the largest and brightest coloured flowers. The growths are more erect and also thicker than in the true species. *D. nobile* var. *cærulescens* is a desirable form; the latter can be retarded so as to flower as late as April and May. I think it a great pity that this grand old Orchid is not more extensively cultivated than it is. If plants in the first place had to be purchased they can be bought very reasonable, particularly imported plants; and when once a plant has attained a medium size there is always a possibility of propagating it by taking off the young plants that are produced from the upper portion of the old pseudo-bulbs. These young plants should be potted, or, what is better, they should be placed in baskets, placing four or five of them together in a small basket, and hang them up near the glass in the stove. It is surprising how soon they become healthy little plants if properly attended to.

A very good and cheap plan of growing *Dendrobiums* came under my notice two or three years ago, and I think it worth relating. It was at an establishment where *D. nobile* was grown in quantity to yield flowers for buttonhole bouquets. The gardener only started with two or three large plants, and when I saw them he had about a dozen and a half fine baskets. His plan of making baskets was a very cheap and simple one. There were several large Elder bushes in the shrubberies and plantations, and from these the wood was cut for his baskets. The wood selected being about an inch in thickness, it was cut into suitable lengths according to the size of baskets required, and made in the usual way. It was surprising how the roots clung to the sides of the baskets. Whether it was the rough surface which the roots so much liked I do not know, but evidently they enjoyed the treatment they received. Elder wood is not nearly so durable as Teak, but still baskets made from Elder should with care last at least three or four years. The roots of the Orchid in a great measure keep them together.

One of the earliest of the *Dendrobes* to flower is *D. formosum*: this is certainly a showy and desirable plant, lasting a long time in perfection. The next to succeed the last-named species is *D. aureum*, and the new and rare variety *D. aureum* var. *philippinense*. The earliest plants of *D. aureum* will in many cases be showing their flower buds, and may be removed to a warmer house provided they have been kept dry and in a cool house for some time past. This is one of the most beautiful and useful of the genus. The flowers are not so showy, perhaps, as some of the others, but what they lack in colour is more than balanced by the delicious perfume they possess, suggestive of Cowslips. *D. crassinode* and *D. Wardianum* are a little later and are still growing. Every attention should be given them in order to have their growths completed as soon as possible. *D. Wardianum* ranks amongst the leading species of the genus, but is not always the best to grow. When a good plant with several long pseudo-bulbs is in flower it is very handsome, the colours are so pleasing; and another point in its favour is, the flowers last in perfection for a long time provided the plants are removed to a drier and cooler atmosphere. *D. Pierardii* is one of the oldest species in cultivation, having been introduced from the East Indies so far back as 1815, and well deserves to be grown in every collection. It is of free habit, and flowers profusely from every joint when the wood is well ripened. The above-named species can be grown in baskets, and

well deserve the extra care and attention they require more than ordinary stove plants.—W. K.

WINTERING STRAWBERRIES IN POTS.

AFTER the severity of last winter there need remain no doubt on the minds of those engaged in forcing Strawberries extensively in pots, that the plants are as well outside during the winter as stored in frames and cool houses. Frames even in the most extensive establishments are frequently required for other purposes than protecting Strawberries, and it is a serious matter where there are few frames and these crowded with Strawberries, when at the same time they are wanted for Lettuce, &c., to maintain a supply of salad. This state of things compelled me in 1878 to try a few Strawberries outside, and a larger number in 1879. The result having proved very satisfactory, I resolved to leave all the plants out last winter, and I am now convinced that they are as well or better outside than in. Left outside they enjoy a more complete rest, and when they are introduced into heat growth commences at once and the plants come quickly into flower. It appears to me that no advantage is gained by placing even the earliest batches in frames for protection against heavy rains, as if the pots are well drained and full of roots autumn rains will not injure the plants nearly so much as placing them in frames and keeping them dry to bring about rest. This results in injury to their roots, as Strawberries cannot endure drought during any stage of development, while if kept watered in frames the plants have a tendency to prolong their growing season instead of being allowed to go naturally to rest outside.

Those plants protected in autumn will not start into growth so early as those left outside until wanted. For instance, a batch is protected in autumn and placed on a vinery or Peach house shelf in November to be started into growth. Another lot is left outside until the end of the following month and cold weather has induced rest. These will start more vigorously into growth and throw up their flowers both better and stronger above the foliage than the earlier plants. Both may ripen their fruit much about the same time, but the heaviest and best crop will be from those started at the end of December. Nothing is gained by bringing Strawberries prematurely to rest and starting too early. An early growth of the plants succeeded by an early natural rest is by far the most satisfactory system of producing early fruit. This is best accomplished by obtaining a few early runners from young plants on a warm border, and growing them afterwards in 5-inch pots. These are filled with roots earlier than pots of a larger size, and thus the plants complete their growth in time to receive a good rest. In no previous season have my plants of *Vicomtesse Hericart de Thury*, which I regard as the best Strawberry for early work, forced so quickly and easily as last spring, which I entirely attribute to their being left outside until introduced for forcing.

After the severe weather was past several remarked that my plants had suffered dreadfully because all the old foliage was gone and only the crowns left. They certainly looked miserable objects, but the pots were well filled with roots which were in splendid condition, and the crowns were large and plump. These plants, however, soon produced new strong foliage, and fine crops of fruit.

The pots are very liable to break if left out during hard frosts, but this can be reduced to a minimum if they are plunged in ashes or partly decayed leaves. This involves but little more labour than packing them in frames and attending to them afterwards. If extra labour, however, is occasioned, it is well repaid by having a number of frames for other purposes. The system of stacking Strawberry pots upon their sides one row above another, cannot be too strongly condemned, as the plants suffer considerably from drought during dry winds.

When the winter is past the plants should be lifted out of the material in which they have been plunged and the decayed foliage removed. The soil should be well pressed to the sides of the pots and the whole top-dressed with rich soil. It is surprising how a little rich top-dressing assists the fruits when swelling.

I may just mention that Sir Charles Napier appears less hardy than the majority of Strawberries, and if left outside during such a winter as the last would be injured more or less; in fact, many plants were killed that were established in the open ground.—WM. BARDNEY.

A ROCKERY FOR ALPINE PLANTS.

(Continued from page 349.)

THE rockery I have described will give a surface of more than 100 square yards—we may call it in round numbers 1000 square

feet—to cover with plants. This sounds a large space, but the difficulty generally is not how to cover it with plants, but after a few months how to find room for choice rockery plants when they come into our possession. We must remember that nearly every plant, whether alpine or not, flourishes and increases more rapidly on a rockery than on a flat border, and the rapid spread of many of our old friends becomes astonishing. Plants which we have been accustomed to nurse in frames through the winter become quite hardy on the slopes amongst the stones. This causes a strong temptation to plant some on a rockery which have no business there, and a careful discretion in selection must be exercised. It is hard to define an alpine plant, and there is no occasion for us to do so, especially as many which are undoubtedly and strictly alpine in habit are by no means desirable occupants of a choice rockery, and many pretty and delicate plants which are not alpine may properly be cultivated in this way.

Those who are ambitious of covering their new rockeries with hardy perennial alpine in one season will have no difficulty in doing so. They may have resort to advertisements which offer a hundred choice alpine for £1, and their friends who have rockeries will readily supply them with a stock of rapidly-spreading plants. At the end of the first year they will be congratulated on the success of their rockery which has been built in so short a time, and will, perhaps, think that they have much to be proud of. Masses of many sorts of *Vinca*, major and minor, plain and variegated; cascades of *Cerastium* reaching from the top to the bottom and spreading over the flat ground below; large cushions of *Saxifraga caespitosa* and *hypnoides*; irrepressible *Sedums* of the acre and rupestris type, and *Sedum spurium* of several colours, will quite hide the soil and the stones. Then there will be luxuriant masses of *Arabis* and large tufts of *Columbine*; and the common *Primrose* with leaves grown to a gigantic size will have occupied all the slope beneath it and round it with seedlings. Add to these *Coronilla varia*, *Corydalis lutea*, and the large-flowered running *St. John's Wort*, and the insidious *Asperula odorata*, and the still more insidious, because it looks so innocent, *Campanula pumila*.

These and many others which would make up a list too long to enumerate, you will have a well-covered rockery, which through autumn and winter you will think a success, and it will certainly look very rustic and pretty; but with spring the struggle for the survival of the fittest will begin. Every nook and corner will rapidly be occupied, and when the hamper of new alpine which has been waiting favourable planting weather arrives, you will carry them along the rockery in vain looking for a vacant spot, and being reminded at every step of the proverbial advantage of possession. If you try to clear a space, you will find that the roots you are looking for are more than a good way from the space you wished to clear, and are so firmly and deeply entangled amongst the stones that no digging or pulling will extricate them, and before the end of the summer you will conclude that you must either leave the rockery a hopeless wilderness and build another for the choice plants, or pull the old one entirely to pieces, and, having entirely cleared away every root, begin again to plant it more cautiously and slowly, with plants of which you know the habit.—C. W. DOD, *Edge Hall*.

(To be continued.)

AERIDES ODORATUM PURPURASCENS.

MANY species and varieties of *Aerides* are grown and valued in gardens, but among those requiring comparatively little trouble to ensure fairly satisfactory results, *Aerides odoratum* is especially esteemed by many Orchid-growers. It is very seldom, however, that such a large and vigorous specimen is seen as that represented in the woodcut, fig. 67. The variety there shown, *A. odoratum purpurascens*, is, moreover, not so common as some of the others, though it is, when well grown, equal to any other form of the species. The engraving was prepared from a photograph taken last year when the plant was in flower, and recently forwarded to us by Mr. C. Warmington, gardener to J. T. D. Llewelyn, Esq., Penllergare, Swansea, who gives the following cultural and descriptive particulars concerning it.

"The *Aerides* is growing in a basket 2½ feet wide and 10 inches deep. The centre growth is over 6 feet high, and there are five other principal growths about 5½ feet high from the top of the basket. There are also many young growths from 1 to 4 feet high. Last June when in flower the plant had seventy-eight spikes, with from fifty to sixty flowers on a spike.

"My mode of treatment is very simple. About the third week in February I remove all the old sphagnum moss and crocks that can be done without injury to the roots. I then supply fresh moss and clean crocks. The moss is then syringed, the water

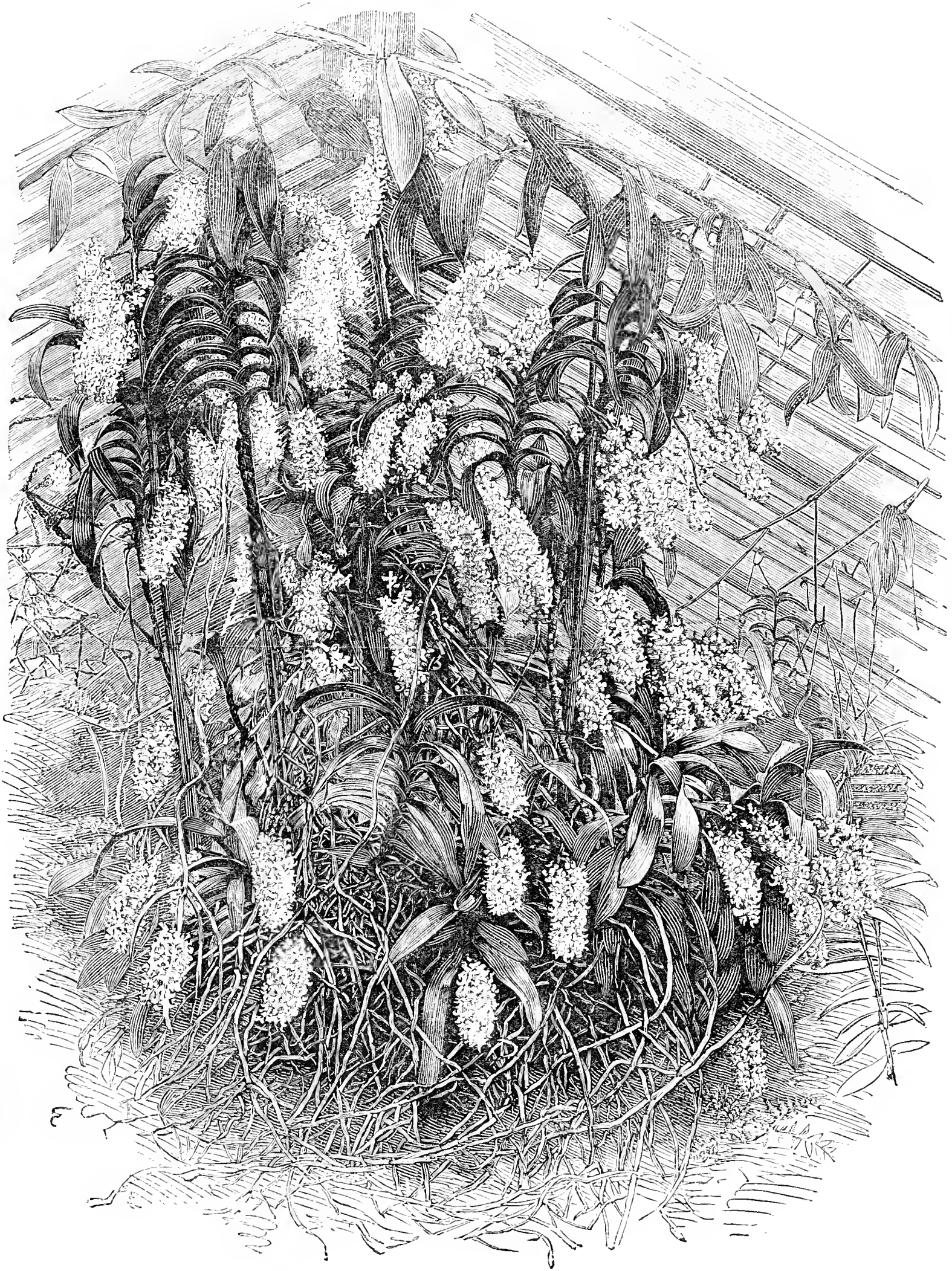


Fig. 67.—*AERIDES ODORATUM PURPURASCENS.*

causing it to settle down. Through the summer months the plant is supplied with water when it is required, the basket and the roots being syringed twice daily. I seldom syringe the foliage, only occasionally after a very hot day."

[We congratulate Mr. Llewelyn on the possession of such a splendid specimen, and his gardener on his skilful cultivation.]

SCRAPS ABOUT FRUIT.

STRAWBERRY JAMES VEITCH.—Can any of your readers who have grown this Strawberry tell me if it is a good bearer and a good-flavoured fruit, and suitable for growing for the market? I should feel much obliged for the information.—F. W.

BROWN BEURRÉ PEAR.—With us this Pear on a west wall has not afforded us an eatable fruit for the last three years. Is it the same in other gardens? I believe this variety requires a warm locality, and then perhaps there are many better Pears at this season; it decays so soon.—J. TAYLOR, *Shrewsbury*.

KESWICK CODLIN AND LORD SUFFIELD IN CORNWALL.—Of the many varieties and number of Apple trees planted in Cornwall every season, none are in so much demand as the two above. Indeed they are two of the best culinary Apples I know of. Lord Suffield is now much more extensively planted than the Keswick, and is preferred, it being a very good improvement on the old sort.—WILLIAM ROBERTS, *Dersingham*.

LA DELICIEUSE PLUM.—I send you an account of this Plum which may be of service. We have a tree here, planted Nov. 26th, 1838, which now covers a wall 30 feet long by 10 feet high. This tree invariably bears good crops of fruit, and is still in a healthy condition. The fruit in shape is like the Victoria, but is larger and of a darker colour. It is excellent either for dessert or kitchen purposes, and if "A COUNTRY SURGEON" is in want of another good Plum I would advise him to plant La Delicieuse.—F. HOPKINS, *Oxon*.

PROLIFIC APPLES.—About eight years since I planted several varieties of Apples, and have found the following the most prolific. *Espaliers*—Lord Suffield, Prince Albert, King of the Pippins, and Wormsley Pippin. The last named is an extraordinary bearer. *Standards*—Pott's Seedling, a first-rate kitchen Apple, and Court Pendu Plât, a good dessert Apple. From old trees I get the best crops from Keswick Codlin, Dumelow's Seedling, Blenheim Pippin, Wyken Pippin, and Rymer, commonly called Caldwell. This should be in every collection, as it is a good cooking Apple and suitable for sauce or baking.—F. J.

KNIGHT'S MONARCH PEAR.—Some few years since a discussion was carried on for some time as to the cause of this variety prematurely dropping its fruit. So far as I can remember nothing definite seemed to have been arrived at. Every year since a healthy tree of some ten or twelve years' growth has performed this same phenomenon. Can anyone give an instance of its better behaviour, and how situated? I remember seeing this grand Pear (when you can get it) at Stackpole Court, Pembroke-shire, very fine some years since. A misprint occurred in my note on Ecklinville Seedling and Cox's Pomona Apples last week. I desired to say they were good bearers, especially the latter, and the fruit is large, but turns mealy and soon decays.—J. TAYLOR, *Shrewsbury*.

MARKETABLE FRUITS.—There are two fruits which invariably realise remunerative prices—viz., Damsons and Black Currants. Few nurserymen near London have a stock of either remaining on their hands, the numbers of the latter especially that have been planted of late years being really remarkable. Black Currant jam is very popular in this and probably other countries, as much fruit is annually exported, and this may account for the ready sales. Damsons, in addition to making good jam and "cheese," are also extensively employed in dycworks. Shropshire appears to suit the Damson, and from that county immense quantities of them are in favourable seasons bought up for the manufactories. There is no doubt the Prune Damson is the best in quality, but for a heavy crop grow the Farleigh or Crittenden's Cluster.—ESSEX.

ROOT-PRUNING AND MULCHING.—Those who periodically root-prune their fruit trees with a view of keeping the roots fibry and close to the surface do well; but those who root-prune periodically

and mulch heavily the ground underneath the trees every autumn with solid half-decayed cow manure—not disturbing the surface in any way—do better. We have no patience with those who keep encouraging faggotism by thoughtless pruning. "CANTAB'S" ideas are excellent about pruning Apple trees, or Pears and Plums either. If the roots were more attended to and the growths left alone they would become wreaths of strong flowers—at least such is the case with ours.—H. ELLIOTT.

PLUMS, BAD AND GOOD BEARERS.—We have many Plums, and several of them bear only a few fruits and others none. Braby's Green Gage is a very fine Plum, rich, juicy, and excellent, but the tree seldom bears for two years together, and I have never known three consecutive crops. Diamond, oval, purple, large, one of the finest culinary Plums, blooms every spring, but only once have I known a good crop of fruit. Washington, a very fine Plum, never bears freely. I have a Plum with no name, which I am told is Jefferson; it bears well every year. Reine Claude de Bavay seldom bears well. There are only a few varieties that bear every year alike, and them we depend on for a supply. Orleans is a good cooking and preserving Plum, and a good bearer. Victoria is also a good Plum, and a great bearer too. Coe's Golden Drop, one of the very best Plums, is very juicy, sugary, and rich, also very late; we gathered the last on the 3rd of October. I think this variety ought to be in everyone's garden.—F. WALKER, *Isle of Wight*.

DOYENNE BOUSSOCH PEAR.—This Pear may answer in a deep heavy soil, but I certainly cannot recommend it for a thin light soil however highly cultivated it may be. I have a palmette verrier of it as an espalier out in the open garden, and a cordon against a wall; both trees are in full health and vigour, and the fruit is large and so handsome that I have once more ventured to send a dish of it to table. But it was again condemned as worthless, and a welcome substitute found for it in the delicious little fruit of Comte de Lamy. I have carefully tested the fruit of this Doyenné at various stages of ripeness, and as the flavour has invariably proved poor and insipid year after year, it will in future be used only for stewing.—SUSSEX.

DOYENNE DEFAYS PEAR.—"A most delicious Pear, one of the best," says the "Fruit Manual," and I entirely agree with it. The first fruit of it is just ripe, and would evidently keep good for some time. The crop was a full one of fine fruit, and it is very sweet, rich, aromatic, and very juicy. Like so many other Pears it is somewhat capricious about the time of ripening, but it may be classed with the late autumn and early winter varieties. The one fault of this valuable Pear is the tendency of the fruit to crack, sometimes so badly that the entire crop is spoilt. This year there is hardly any cracking, but I would as a safeguard always plant it in a sheltered situation. Apart from the fruit cracking, it answers well as a pyramid on the Quince stock.—EDWARD LUCKHURST.

EARLY-BEARING APPLES.—I am obliged by Mr. A. H. Pearson for naming some late varieties of Apples that are early bearers. Mr. Pearson's field of observation is so extensive that he is undoubtedly in a position to communicate useful information, and letters from his pen must be generally acceptable. His father was one of my most esteemed friends, and I was indebted to him for the idea that early Apples as a rule are early bearers, and the produce of a number of trees obtained some years ago from Chilwell proved him right; but he said there were exceptions to the rule, and there are, but I find they are not numerous when the observations are taken over a number of years. Irish Peach, one of the very best early Apples, has with me also proved an early bearer; so has Red Astrachan. Court Pendu Plât came into bearing early, but scantily; I regard it as a safe rather than an early bearer, and a variety well worth planting. The Hawthorn-dens I regard as early, as they attain a good size early. The other late varieties named on page 382 bear tolerably well in an early state, the most prolific in this respect being Sturmer Pippin. Small's Admirable is also an excellent Apple for early profit. Mr. Luckhurst's notes on page 386 on this important aspect of fruit culture are instructive.—A NORTHERN GARDENER.

INFLUENCE OF SOIL ON FRUIT-KEEPING.—From many observations I have made I find that soil has a wonderful effect on the keeping properties of fruits, and I am reminded by the remarks of "A KENTISH GROWER" on Warner's King that this is the case. My experience is that Apples and Pears grown upon light soils and in warm situations ripen earlier, and consequently keep a

shorter time, than fruit grown upon heavier and colder soil. In my own case I have Blenheim Pippin, which keeps till April and May. Cox's Orange Pippin keeps till long after Christmas, and Marie Louise Pears keep till February. My soil is a heavy one on the Hastings sand, and 300 feet above the sea, which it overlooks on the south coast. This late-keeping does not in the least deteriorate the quality of the fruit. I remember many years ago the late Mr. Robert Thompson being greatly puzzled with fruit of Marie Louise which was shown at the meetings of the Royal Horticultural Society by the late Mr. Moorman of the Clapham Road long after all the fruit-rooms about London had ceased to have it. This used to occur not at fitful intervals, but annually, and fruit-growers puzzled their brains as to how Mr. Moorman preserved them. Mr. Thompson was commissioned to investigate the matter, and with his usual application and incisive mode of inquiry he set about the matter. He visited Mr. Moorman's fruit-room, examined it, took measurements and made plans of it, and these were published accompanied with some learned remarks both philosophical and physiological on the manner in which the fruit-room was constructed. The mystery was thought to have been solved, and ardent fruit-growers took to altering and building fruit-rooms upon Mr. Moorman's principle. But it all came to nought. Their fruit kept no better than before, and it was not till it was discovered that Mr. Moorman's fruit was not grown in his garden in the Clapham Road, but in another garden at Bexhill on the Sussex coast, and on the same Hastings sand formation to which I have already alluded, that light dawned on the mysterious cause of the long-preserved Marie Louise Pears.—H. B.

HARDY PLANTS—SELECTION AND ARRANGEMENT.

IN describing the chief plants and their arrangements I will take as examples the borders in the garden here to illustrate what I consider the most effective mode of treating these plants from a decorative point of view. This should never be lost sight of, as being the main one to work out. On this principle more and more of what are termed hardy florists' flowers are admitted to the borders. It is impossible to satiate the appetite for flowers well grown and well arranged. I advise intending planters to plant most largely old kinds which are well known as being good border flowers, instead of trying a large number of sorts many of which may be found of no value whatever.

Commencing with the spring display, which is also that to which the most interest is attached, clumps of bulbous plants are largely employed for this season, at least for the earlier part of it, and at that season there are really no plants more effective than Snowdrops and Crocuses, yellow Crocuses especially. The best Snowdrop is the double variety of the common form, though of course others are grown. A great variety of Crocuses are also employed, though the common yellow predominates. Iris reticulata, Sisyrinchium grandiflorum, much finer than its white variety, and Myosotis dissitiflora are all beautiful. The various double forms of the common Primrose, of which the rose-coloured and purple are the most effective, are freely employed; there are also single Primroses in a great variety of colours, but these are grown in acres amongst the grass in the pleasure grounds, and are not in consequence placed in the borders. Narcissus minor is largely used, being early and very bright. Christmas Roses make quite a show in themselves, but they are best in separate beds. Many clumps of Scilla siberica are planted over the front half of the border; S. bifolia and its white variety are also grown, but not in such numbers. Hepaticas again are employed freely, the most useful being the double pink variety, the white, and H. angulosa. Aubrietias, which we are obtaining in many shades to deep crimson, and Arabis alba, are both used to a great extent. The Arabis alone makes a border quite showy. Then Pansies, either old plants or firm strong summer-struck cuttings planted in autumn, come in with effect; and the dwarf Phloxes, of which P. verna, P. Nelsoni, and P. frondosa are the most useful, follow closely, and are planted sufficiently thickly to make a feature in the border. The large purple and the large white Dog's-tooth Violets are also very beautiful; Grape Hyacinths, Anemones, Dornicum austriacum, and the several species of Evergreen Candytufts, with several Daffodils bring us into summer, when the flowers come on in the greatest profusion.

Taller-growing plants then commence flowering, and foremost amongst these must be named the double Pyrethrums. Two old varieties of singles we have grown, and do not think them so showy as the doubles; but some of the new single forms may surpass them. Delphiniums, Lupinus polyphyllus, L. p. albus, and L. p. bicolor, Aquilegias, early Phloxes, and Lilium candidum are the finer tall plants chiefly planted. Roses, especially Moss Roses, are well represented. Nearer the front are many

clumps of Lychnis dioica fl.-pl.; Globe-flowers; Ranunculus, the double yellow and double white; Polemonium caeruleum album. Nearer the front still are many clumps of Sanguinaria canadensis, Dodecatheons, of which D. Meadia elegans is the best. Pinks are thickly planted, also many Saxifragas and Sedums, close to the front, with Gentianellas and dwarf Veronicas. Iris cristata is also much used. Then very many beautiful plants are found in the Bell-flowers. Of these Campanula persicifolia alba fl.-pl., C. p. coronata caerulea, and C. p. c. alba are most used as tall plants; C. Van Houttei as a medium-growing variety, C. Hendersoni and C. carpatia as lower-growing still, and C. turbinata and its varieties in the front. We have very many more of these, but none so prominent. Adenophora Lamarckiana is used as a characteristic plant. Single Sweet Williams are very attractive, and the double dwarf crimson variety is a most useful plant. The English Irises are indispensable. Iris germanica and I. pallida are grown largely. Lychnis viscaria is always attractive, either the common sort, the white variety, or the double sorts. Achillea aurea is distinct and good, so is the taller Achillea Ptarmica fl.-pl.; and then the Aconitums come on as a great feature, the two-coloured form of A. napellus being the best. Sida malvaeflora is a useful plant. Some of the Geraniums are pretty, but none is better than the double form of G. pratense, of which a good figure was given in the Journal, July 29th, 1880.

Then we reach a period when flowers are not so plentiful until the autumn brings its stately floral attendants and the second flowering of many of the spring and early summer plants. Take the last weeks of September as representative for autumn flowers, and we have the borders at their showiest. Wind is the great enemy of the autumn-flowering plants, rain having comparatively little effect on most of them. The stateliest plant is the Hollyhock, and I am glad to say that I have at last obtained a healthy stock of plants from a nurseryman at Hawick, and are the only plants free from disease which I have received for five years. Show, fancy, bedding, bouquet, and single Dahlias are very floriferous and brilliant. I have grown single varieties for four years, and the only one which equals the doubles is the single white which I received under the name of D. alba. Then the late-flowering Phloxes, some of the earlier Asters, Campanula pyramidalis and its white variety, Delphiniums, Tritomas, Rudbeckia Newmanii, Helianthus multiflorus flore-pleno, Gladiolus, of which G. Brechleyensis is the most useful for borders, Alstroemerias and Japan Anemones, are some of the most beautiful tall plants. Plants of medium height are well represented by border Picotees, self Carnations, of which Duke of Wellington is the showiest, early-flowering Chrysanthemums, Tradescantias, Aster bessarabicus, A. longifolius formosus and A. horizontalis, Monardas, Sedum spectabile, Antirrhinums, summer-flowering Campanulas, Chrysocoma Linosyris, Coreopsis, Stenactis speciosa, Erigeron grandiflorum, Pyrethrums and Corydalis solida, as being the showiest. In the front lines there is not so many in flower at this date; but dwarf Campanulas, Polygonum Brunoni, Primulas, Potentillas, Pansies, Waldsteinia carinthiaca, Colchicums, Achillea aurea, Prunella grandiflora, Crucianella stylosa, Vittadenia triloba, and some variegated plants lend a certain cheerfulness even close to the front edge. Later Asters, of which the best are A. turbinellus, A. novae-angliae, A. novae-belgiae, and A. laevis. The continued flowering of some of the plants above named in good seasons prolongs the display, though of diminished effect, down as late as November.

I have repeatedly seen the enjoyability of these borders destroyed by the manner in which the plants have been arranged, especially as regards the height of the occupants. In another communication I will describe the plants in one of the borders here, as a means of helping those who are not so well acquainted with these plants as to be able to regulate the heights properly.—R. P. BROTHERSTON.

SCALE ON PEAR TREES.

HAVING some Pear trees badly infested with scale, and after trying several remedies with little or no effect, I applied linseed oil. I had the trees carefully painted, also some Apple trees. The work was done about February. The result was, it quite killed the scale, but nearly killed the trees, which were three years before they recovered from the application. During the three years the trees grew very weakly and bore very few fruit. Some of the trees were painted only as far as the scale was seen. The parts not painted were quite visible 50 yards from the trees, as the leaves were much larger, and those portions of the trees only bore fruit. I wish to caution others who think of using oil of any kind. I once applied a weak solution of paraffin to kill blight on a Peach tree. The oil only remained on the tree about

an hour before it was washed off, but the work was done and the tree died early the following summer.

I would also caution young gardeners not to use Gishurst compound too strong—in fact, only half the strength recommended, and be sure to keep it from the buds, or they will be much injured. I once lost the whole of the bloom buds by applying it only half the strength recommended. It was applied with a syringe in January, and the whole of the trees were covered with a thin spray.—R. OWEN, *Yewden*.

VIOLETS IN LATE SUMMER AND AUTUMN.

THE flowering of Violets in autumn and winter depends quite as much on the weather or the temperature to which they are subjected as on the varieties blooming naturally at that season. None will flower freely in a temperature below 40°. To secure blooms continuously through the late autumn and winter months a temperature of 40° to 45° at night and 50° by day are essential, accompanied with a circulation of air whenever the external temperature is above 32°. Many Violets that flower in autumn cease to do so on the approach of cold weather, and again flower freely in February, March, and April, would keep on flowering through the winter were they treated so as to favour the development of the flowers.

Violet *Argentæflora* (Lee) produced its first blooms on the 18th July, was in flower generally on August 1st, and was as regards the late summer and autumn at its best on September 1st, blooming profusely up to the 15th of October, when the flowering received a check by frost. This variety is decidedly a summer, autumn, winter, and spring bloomer, but to secure this the runners must not be removed, as from every joint of the runners proceeds a flower, and the runners themselves commence flowering directly their leaves attain full size; the old plants as a rule not producing flowers until September is well advanced, and this season their blooms were scarce even in October, whilst the flowers were being borne freely by the runners.

I am not by any means certain that the removal of the runners of Violets during summer is contributory to the maximum production of flowers. I have proved that plants placed 18 inches apart in spring, and the runners layered as formed, give more flowers than a number of old plants occupying a similar space. The parent makes much finer crowns with its progeny around, the runners not impairing the vigour of the parent, but are a source of strength from the increased leaf-development. It is only when the connection between the parent and progeny is severed that the former shows any symptoms of enfeeblement, and then only from a score or more of separate plants seeking support from space that in the previous season was devoted to one. The removal of runners only increases the production of others, and this certainly is not invigorating to the plant. The runners may be allowed to remain on the plants through the summer, and being layered they will root and bloom as freely, if not more freely, than the old plant, also will yield quite as fine flowers as plants that have had the runners removed. I mention this in order that those who have few plants may raise a stock quickly. In the case of *Argentæflora* it is absolutely necessary to encourage the runners so as to secure flowers at a time when no other kind affords them so profusely—i.e., in summer. The silver-grey flowers with their purple spurs are very elegant, and the fragrance delightful. Unlike most single Violets it does not produce seed, or very rarely. I have only noticed one seed pod, which accounts for its prolonged flowering.

Victoria Regina commenced flowering on the 2nd September, and was very free in late September and up to October 15th, when after the frosty weather the flowers made little progress. This, notwithstanding what was stated last spring in the *Journal* in favour of *odoratissima*, is the grandest of all single purple Violets, and has never failed to flower freely with me in September since it was first sent out by Mr. Lee. Its flowering in autumn may be in a measure due to the plants placed out each spring being taken from those wintered in frames, which would tend to promote an early-flowering habit. This I think can, however, hardly be the case, as their runners exhibit the same tendency, and plants left out flower in autumn. *Czar* is often confounded with *Victoria Regina*, but is not so good in any respect.

Prince Consort is the finest in appearance of all single Violets. It may differ from *odoratissima* and *elegantissima*, but I cannot mark the difference. I had it under the name of Prince Consort, and shall keep it until I am proved to be in error. It yields flowers moderately in autumn—the first blooms expanded on September 6th. The foliage is larger, rounder, and the plant more stately than *Victoria Regina*; the flowers larger, light purple, petals well rounded, and the footstalks longer, and is very fra-

grant; but for profusion and continuity of flowering over a lengthened period it is not equal to *Victoria Regina*.

Princess of Prussia (Lee) has a deep purple glossy flower, showing thick-textured leaves, the plant being dwarf and not free in growth, producing runners sparingly. It bore its first blooms on the 6th September, and is a good autumn flowerer, but is not so free as *Victoria Regina*.

Devoniensis produced the first blooms on October 10th, and promises abundantly. The flowers are deep purple and very sweet. The only other that has flowered to this date (October 21st) of the single varieties being *V. odorata*, the common Sweet Violet; bright blue, the bluest of all, and very sweet. Russian, which is the same as London; Russian Superb, a little larger than Russian; *suavis*, the true Russian, and type of London; with White *Czar* are as yet only in bud, and so are *obliqua striata* and *odorata alba*. White *Czar* I may mention as the purest of any white and very free, but is not good until late autumn. *Rubra simplex* is decidedly a spring bloomer.

The doubles that flower in autumn and onwards are confined to the Neapolitan forms. *Blandyana* may give a few blooms, also *Parmænsis plena*, *Belle de Chatenay*, and double Russian, along with King and Queen, but they have no claim to be classed as autumn bloomers. Of the Neapolitans I still give first place to *De Parme*. It has produced twice as many flowers as any of the others, and the plant is hardier than any of the others, and not so prone to lose the crown and break into many crowns or runners. Its first blooms were gathered August 21st, and were abundant through September, and still are numerous, keeping on until May, occasionally into June. In *Marguerite de Savoie* we have a fine robust plant, a large flower streaked with red in the centre, with a good footstalk. This variety as often seen is only the old Neapolitan. It commenced flowering October 1st free and good.

New York, or *odorata pendula*, commenced flowering on the 10th of August, were generally in flower on the 10th of October, having flowered freely in September. The blooms of this and *Marguerite de Savoie* are very similar, but it does not appear so hardy, and becomes blind quite as much as the old Neapolitan. It is, however, a fine Violet, having large double flowers, very fragrant, freely produced, especially in early spring, and has longer footstalks than most double Violets.

Marie Louise is, perhaps, the freest flowering of the Neapolitans, and certainly is the nearest in colour to the old one of any, being deep lavender with a white eye. It does not flower until October, and then very freely. The start Violets of this class make in autumn is soon ended by the cold; hence to have flowers in winter a temperature of 40° to 45° at night, and 50° in the daytime must be secured to them, with plenty of light, and ventilation on all favourable occasions.

Duchess of Edinburgh shows none as yet of its alleged perpetual-blooming character, and appears to be a very indifferent grower. Its Neapolitan origin is manifest in the foliage, as well as in the flowers and fragrance.

Venice may be classed as very like New York. It flowered well through September. It appears to have a tendency to become blind, and this is a serious drawback as regards the production of flowers.

Neapolitan, pale lavender with a white eye, does not commence flowering until late autumn, and to bloom in winter must have the protection of glass and heat. In March and April in frames it is very free, and for delicateness and fragrance is unsurpassed. Nice is very similar, but the plant is more hardy, with flowers deeper in colour.

Patrie is one of the forms of Neapolitan, and one of the finest for winter flowering, it being very similar to *De Parme*, but with a little red in the centre of the flower, which *De Parme* occasionally exhibits. *Princess Louise*, another of the Neapolitans, is very floriferous, deep lavender, white eye, with a dash of red; flower large, highly fragrant, and footstalks as long and nearly as stout as those of *Victoria Regina*. It blooms from August right through to May.

What a promise there is of Queen, *Belle de Chatenay* and its variety *cærulea*! indeed the spring bloomers have abundance of buds already. This single Neapolitan, I am told, is the sweetest of all, and blooms in Italy all the winter. How does it thrive in this country?—G. ABBEY.

WIRE NETTING FOR PEAS.—I purpose next summer supporting my Peas with zinc wire netting, about 2-inch mesh, instead of the usual Pea rods. Have any of your readers adopted wire netting? with what sized mesh? and how many rows—one or two? and how were the Peas kept against the netting? Any other suggestion

that would be of use will be thankfully received by—B. G., *Cz. Down.*

THE SULTAN APPLE.

I SEND you a box containing two Apples of the Grand Sultan and two of the genuine Cornish Gilliflower, gathered from an old tree in a very old-established garden where the tree has been for the last forty years. This is the true type of the Gilliflower, and, as you will see, differs materially from the Sultan. The flesh of the Sultan when ripe is white, that of the Gilliflower yellow. They differ in shape. The Sultan is much larger and ripens earlier, and does not keep as well as the other. I also send with them a piece of the wood and foliage of each Apple, which are very different in every respect. The wood of the Sultan is strong-growing and the foliage large, the leaf rounding at the point. It spurs freely and does not bear at the extremities like the Cornish Gilliflower, the growth of which is slight and the leaves rather pointed.

The Sultan is a very old Apple, is found in all the oldest gardens and orchards in this neighbourhood, is largely grown and much esteemed as a table Apple. The early windfalls are much used in making "Devonshire Biffins," and are the best Apples for the purpose.

I have never seen the Sultan elsewhere. Do you know it under another name? Is it at Chiswick? If desired I would forward grafts of it to yourself or Mr. Barron. It is a great bearer.—JOHN M. MILLER, *Raleigh House, Barnstaple, North Devon.*

[There can be no doubt that Grand Sultan is distinct from Cornish Gilliflower. The nearest approach it has to any other variety is to Winter Red Calville, but we are not prepared to say that it is the same as that variety. It is a very fine and good Apple.—ED.]

DULWICH HOUSE,

THE residence of Lieut.-Col. Page, is pleasantly situated on a rising ground about two miles from the town of Cardiff, and within a short distance of the ancient city of Llandaff. Looking west a fine view is obtained for some distance up the Vale of Glamorgan, and the low but picturesque hills of Leckwith form a good background, with a broad stretch of level country lying between on each side of the river Ely. To the south-east we have a fine view of Cardiff and the shipping in the docks, and beyond this Penarth Head and the shipping in the roads. The land in the vicinity is rich and fertile, and well adapted to the cultivation of fruit trees and shrubs. Amongst the amateur devotees of horticulture who constitute, we are happy to say, so large a class in this country, there are few who have shown more constancy or exhibited more enthusiastic intelligence in the pursuit than Col. Page. He is a gentleman who derives great pleasure from the cultivation and daily acquaintance with fruits and flowers. The ground attached to his mansion is but eight acres in extent, but we have rarely seen a garden anywhere laid out to better advantage. Without any crowding the ground has been most skilfully arranged to furnish accommodation for a large number of choice fruit trees, shrubs, and flowers. His idea apparently is to rear everything of the best, and by the process of selection of the fittest he has been able to produce fine specimens of hardy fruits and shrubs suited to the place. Col. Page is fortunate in having a gardener such as Mr. Armytage, who, to the experience of long years, adds the quality of an aptitude for receiving new ideas and new suggestions, which is rare amongst men of his age. He is always ready to co-operate with his employer in carrying out the improvements which his zeal, practical skill, and carefully acquired knowledge are constantly suggesting.

Adjoining the house is a neat conservatory gay with choice flowering plants, and from the terrace in front of that structure a walk runs to the forcing houses and kitchen garden. The lawn, which is on a lower level, slopes to the south, and is neatly laid out with geometrical flower beds filled with some of the best varieties of bedding plants. Beside the beds the lawn is furnished with fine examples of ornamental trees and shrubs. The lawn-tennis ground lies to the left of the lawn on a higher level, and is divided from it by a grass terrace and the walk leading to the forcing houses, &c. The lawn and lawn-tennis ground are enclosed in the south by a large shrubbery running parallel with the terrace walk in front of the mansion, which completely screens from view the back wall of the forcing houses and kitchen garden; while between the shrubbery and the grass is a long herbaceous border filled with Phloxes and other plants in full flower.

Proceeding to the forcing and plant houses, the first we entered

was devoted to Pine Apples, Melons, Cucumbers and Grapes. It is span-roofed, 24 feet long by 12 feet, with a bed on each side of the path, one of which is filled with Pine Apples in pots, the varieties consisting of Queens, Smooth Cayenne, and Jamaica. The other bed is occupied with Cucumbers and Melons, which are trained to a trellis near the glass. At the end of the house were two Vines in pots trained over the walk, forming an arch, and bearing a good crop of Grapes. The Melons had also been fine. The Cucumber plants, Tender and True, were still bearing fruits nearly a yard in length. Though this is an exhibition variety, we cannot see where its usefulness lies compared with other varieties in cultivation. Near this is a span-roofed plant stove, 30 feet long by 20 feet wide and 11 feet high, with a raised bed in the centre, and a walk round and side stages for placing the plants on. It was well filled with medium-sized plants of Ferns, Lycopodiums, Dracaenas, Caladiums, Allamandas, Coleuses, and others in fine condition.

A lean-to vinery 30 feet by 15 feet and 13 feet high next received attention. The Vines are planted in an outside border and brought inside and trained on the intermediate system of pruning. The canes are allowed to grow to the top of the house in three years, and then they are cut clean out in the fourth at pruning time. By following this method a regular succession of young wood is obtained all over the house, which never fails to produce good crops of the best quality. The house was filled with seven Vines, one each of the following varieties—Black Hamburgh, Muscat of Alexandria, Madresfield Court, Gros Colman, Lady Downe's Seedling, Foster's Seedling, and Bowood Muscat. Besides the Vines we observed some Tomatoes in pots trained on the back wall, and a large plant of *Eriobotrya japonica*, which fruits there and is much appreciated. In a lean-to greenhouse 24 feet long by 12 feet wide some Vines growing up the rafters were carrying a fair crop of useful-sized bunches of well-coloured Black Hamburgh Grapes, which had never received any fire heat from the first. While in this house we were forcibly reminded of an enthusiastic friend who once wrote "that he was never satisfied unless every space and corner of his vinery was filled with plants." We admire his enthusiasm, but object altogether to the practice of growing plants and fruit in the same house, and would advise all those who can to avoid it.

Passing out of this we entered, what to us was the most interesting house of all, a lean-to orchard house 60 feet long by 15 feet wide, containing Peaches, Plums, Pears, Apples, Figs, and Vines, some in pots and some planted out in the border. A walk extends up the centre of the house its entire length. The roof is strengthened in the middle by a light beam supported at equal distances by five neatly turned wooden pillars. Vines were planted at each pillar and trained up and along the beam for the space of 6 feet on each side. Twelve Vines were planted in the border in front of the house, and trained up the rafters as single rods to meet the cross beam just mentioned. The other half of the roof was bare, and allows plenty of light and sunshine to penetrate to the Peach trees planted against the back wall. Some Peach trees close to the front lights were trained in bush form, and between them and the walk was another row in pots. Then between the walk and the back wall were two rows of trees in pots of various kinds, and the back wall was covered with Peach trees as already stated. They were clean and healthy, and bearing a heavy crop of large fruit. For the trees, pots 14 inches in diameter are generally used. The trees are never potted oftener than once in two years, and they seldom fail to produce good crops of fruit.

We might here mention a little peculiarity respecting the quality of the fruit of the Peach grown under different treatment in this house. Colonel Page informed us that the fruit of the Peach trees planted out in the front of the house and grown as bushes is inferior in flavour to the fruit of those grown in pots, and that the fruit of those grown in pots was still inferior to the fruit of the trees grown on the back wall. We cannot account for the fruit of the trees in pots being superior to those of the trees planted out in the border, unless it is that their roots penetrate deeper into the soil, and are consequently much farther from the sun's influence than the roots of those in pots. It is easily understood the fruit will be of better quality from trees spread out and trained in fan-shape, every shoot receiving the full benefit of the sun's rays (whether on a back wall or trained close up to the roof of a house) than those grown on bushes. Amongst Peaches we observed the following varieties carrying a fine crop of good sized fruit—Rivers' Early York, Royal George, Grosse Mignonne, Bellegarde, and Prince of Wales. Of Nectarines, Rivers' Pine Apple is reckoned here as one of the best varieties. It has a strong constitution, is a fine bearer, and scarcely ever fails in producing a heavy crop. Plums are grown in great variety, but Jefferson's is the favourite. The fruit under glass grows to a

large size, is of a beautiful amber colour, and has a most delicious flavour when ripe. Apples and Pears are grown in great abundance. Of Apples, the following varieties were heavily laden with fine fruit—Ecklinville Seedling, Cox's Orange Pippin, Worcestershire Pearmain, Margil, and Irish Peach.

The kitchen garden is in front of the houses, on a somewhat lower level, sloping to the south-west. It is divided from an orchard lying to the south by a row of good Austrian Pines, and beyond them another row of large Black Italian Poplars. It is enclosed on the west side by a boundary wall covered with Pear trees, and on the east by a paddock, some five acres in extent, including plantations. A broad gravel walk runs parallel with the houses, and from this other walks at right angles divide the garden into quarters. The borders near the walks were planted with pyramidal Apple and Pear trees, some 6 or 7 feet from the Box edging, and 12 feet apart. The Pear trees were in vigorous health, shapely specimens from 8 to 10 feet high, and were, at the time of our visit, loaded with fruit. The Apple trees were sickly, cankered, and not suited to the soil and situation. Colonel Page states that he had obtained both the Apple and Pear trees from France, that the Pear trees grew well, but that Apple trees did not succeed with him. In passing, we might say the garden was well cropped, and everything in it looked neat and orderly.

The fruit garden is to the west of the mansion in a line with the lawn, and is divided from it by a large shrubbery, in which we observed some fine flowering trees and shrubs, and a Siberian Crab loaded with its bright red fruit. The sides of the walks were furnished with espalier Pear and Apple trees about 4 feet high covered with large fruit of superior quality, and all the quarters inside were filled with standard and pyramidal-trained trees of the best varieties. Beside espaliers, standard and pyramidal-trained trees, there was a long wire trellis about 8 feet high covered with single cordon Apple and Pears, trained obliquely, carrying the finest crop we have ever seen. To use a hackneyed phrase, "the fruit was hanging like ropes of Onions." We were never much in favour of growing single cordons, but after seeing such fine examples as those described we intend to give a few a fair trial at the earliest opportunity. Between the outer walk and boundary wall of this portion of the garden there is a large shrubbery which completely hides the wall from view; it also shelters the fruit trees from the prevailing stormy west winds of this district, besides giving this portion of the garden a warm comfortable appearance.

To the west of this is another garden an acre in extent, which is separated from the eight acres attached to the mansion by a public road. It is divided into four quarters by a walk down the centre, and another across the middle. One of the quarters is planted with 150 bush Apple plants of the best varieties properly named, obtained from Messrs. Smith of Worcester; and one with 150 pyramidal Pear trees from Messrs. Rivers of Sawbridgeworth. The varieties are planted in rows by themselves, and Strawberries and Gooseberries are grown between the rows. The other two quarters are devoted to vegetables. The trees and bushes individually are pictures of health and remarkably well trained. Some of the varieties both of Apples and Pears were borne down to the ground with heavy crops, whilst others had scarcely any fruit. Of Apples the following had good crops—Ecklinville Seedling, Cellini, Cox's Orange and Sturmer Pippins, Reinette du Canada, Court Pendu Plat, Betty Geeson, Irish Peach, Claygate Pearmain, and Pine Apple. Some of the earlier varieties had been gathered, of which Lord Suffield, Stirling Castle, and Hawthornden had borne fine crops.—EUPHRASIA.



KITCHEN GARDEN.

Forcing Department.—Make successional sowings of French Beans in pots or boxes, in quantity proportionate to the requirements and means, earthing up those previously sown, being careful not to give too much water in the early stages of growth, but affording it in a tepid state copiously after they commence flowering. Damping off at this season is the great evil to be contended against, and should be avoided by ventilating constantly. Keep the pods closely picked, affording a temperature of from 60° to 75°. Commence making periodical sowings of Mustard and Cress. Train Tomatoes as re-

quired, earthing up the roots with fresh rich compost, supplying them occasionally with tepid liquid manure. To ensure a healthy and fruitful condition of the plants through the winter plenty of light must be afforded, and a temperature secured of 55° to 65°, with an advance from sun heat to 75°.

A few roots of Seakale and Rhubarb may now be placed in the Mushroom house or other warm structure in rich moist soil, bringing it well up to the crown of the plants. It is necessary that light be excluded from the Seakale to insure its blanching. The best kind of Rhubarb for forcing is Johnstone's St. Martin's, Linnæus being good, also Victoria later. Dung and leaves in the proportion of three of the latter to one of the former should be thrown into a heap, damped if necessary, and turned over occasionally to insure fermentation, the thorough mixing of the materials, and to sweeten them; after which they may be formed into a bed on which Asparagus may be planted—indeed, if the materials are already in readiness a bed may now be planted, but unless the demand be urgent and the resources adequate there is little gained by starting very early.

Mushroom House.—When the surface of beds in bearing becomes dry water them moderately at a temperature slightly warmer than that of the atmosphere, being careful not to give too much or to have the atmosphere overcharged with moisture, as is likely to be the case from the fermentation of the horse droppings when taken into the house and used for making successional beds, expelling superabundant moisture by a little top ventilation. To secure a regular supply of Mushrooms a somewhat moist atmosphere and temperature of 60° to 65° is necessary. Make up successional beds as materials are available, spawning and earthing as advised in former calendars. Watch closely for slugs, and trap woodlice with a boiled potato in a little hay placed in a flower pot on its side, and shake out the woodlice into a bucket of boiling water.

HARDY FRUIT GARDEN.

Where it is intended to form fresh plantations of Gooseberries, Currants, and Raspberries the ground should be well trenched and liberally manured. It is always advisable to plant early in autumn as soon as the leaves have mostly fallen. Some of the most desirable Gooseberries, when the object is flavour, are the following:—*Green*: Green Gascoigne, Green Walnut, Pitmaston Green Gage, Glenton Green. *Yellow*: Early Sulphur, Yellow Champagne. *White*: Crystal, Whitesmith, Bright Venus. *Red*: Champagne, Keen's Seedling, and Red Warrington. For a combination of size and quality with free bearing the following are desirable:—*Green*: Lofty, Shiner, Greta Green, Keepsake, Random Green, and Telegraph. *Yellow*: Broom Girl, Garibaldi, Catherina, Leveller, Leader, High Sheriff, and Mount Pleasant. *White*: Snowdrop, Overseer, Antagonist, King of Trumps, Careless, and Queen of Trumps. *Red*: Speedwell, Yaxley Hero, Companion, Slaughterman, Ploughboy, and Talfourd. Currants.—*Red*: Red Dutch, Houghton Castle, and Warner's Grape. *White*: White Dutch, White Dutch Cut-leaved. *Black*: Lee's Prolific and Black Naples. Raspberries.—*Red*: Antwerp, Carters' Prolific, Baumforth's Seedling, and Semper Fidelis. *Yellow*: Brinckle's Orange and Yellow Antwerp. The autumn bearers are Large Monthly, October Red, and October Yellow.

Gooseberries and Currants should be planted 5 feet apart every way, allowing more distance if the soil be rich, or diminishing the distance in poor soil. Raspberries may be planted in rows 5 feet apart, and 3 feet asunder in the rows, whilst in rich soils the rows should be 6 feet apart and the plants 3 or 4 feet in the rows. When planted to be trained against an espalier the plants may be 2 feet apart, and 6 feet between the espaliers. Brambles, or Blackberry, may be planted at a similar distance as Raspberries, and be trained similarly to espaliers. The Lawton and Dorchester are good varieties, giving a quantity of fruit in late summer and autumn much esteemed for tarts and for jam. Strawberries should be cleared of weeds, removing perennial weeds by the roots and lightly stirring the soil about the plants; give a good top-dressing or mulching of partially decayed manure.

FRUIT HOUSES.

Pines.—At this season, from the absence of sun and ventilation, condensed moisture will abound and, accumulating on the glass, inter-

feres with the free access of light to the plants, which now more than at any other time is essential to their health, therefore a little ventilation should be given whenever an opportunity offers. In order to keep young stock sturdy ventilate liberally houses or pits when the weather is suitable. Water at the roots will not be required so frequently now as when absorption by the plants and evaporation is more powerful, but the plants must be looked over at least once a fortnight, and a supply given when required. Make the most of sun heat in the fruiting department, closing early in the afternoon with sun heat at 80°, and when the weather is mild keep the night temperature at 70°, and under adverse circumstances 5° less.

Vines.—Where it is necessary to have new Grapes ripe in April the first early house should now be started. The border outside should be covered with a good thickness of Oak or Beech leaves, with a third or fourth of horse dung incorporated, and in addition to this wooden shutters should be provided to throw off cold rains and snow. If the supply of these materials is not such as to admit of fresh additions being made to those on the border as the heat declines and requires renewal, it will be advisable not to put on the material so thick as to cause much fermentation, but only a foot thickness to preserve the roots from frost, with shutters to throw off rain and snow. Applying fermenting materials at starting, and allow them to become cold for want of renewal when the Vines are in active growth is injurious; a foot depth of bracken, or dry leaves, or litter, with means of throwing off rain or snow, is better. To facilitate the commencement of growth a good bed of leaves and litter inside the house by producing a moist genial ammonia-vapour-charged atmosphere will be beneficial as well as lessening the necessity for fire heat. The inside border should receive a thorough supply of water at a temperature of 85° to 90°, repeating it as needed to render the soil thoroughly moist. Sling the rods in a horizontal position to insure their breaking regularly, lowering young canes to cause the bottom buds to start. Syringe three times a day, and keep every part of the house moist by sprinkling in bright mild weather.

The Vines at this season will need a temperature of 50° to 55° at night and 60° to 65° by day to start them into growth. Those to be started early in December for fruiting early in May must be prepared without delay, thoroughly cleansing the house, and keeping it cool for the present. Collect leaves and stable litter for making a bed when the time arrives for closing the house. Push on the pruning and cleansing of succession houses as fast as the crops are removed and the foliage has fallen. Remove the loose surface soil from the roots, and supply good loam, to which has been added a little bone meal. The advantage of early pruning and a long rest for Vines cannot be over-estimated, and the past season having been highly favourable to the increase of red spider extra care in washing and dressing the rods will save much trouble another season. Remove all leaves from Vines going to rest, keeping the house cool, dry, and airy. The fruiting Vines in pots for successions should be pruned, washed, and dressed with an insecticide, placing them where they will be dry and cool, having protection from frost until they are wanted.

STRAWBERRIES IN POTS.

Plants intended for early forcing and having well-developed crowns may now have the surface soil stirred without injury to the roots, and be top-dressed with fresh horse droppings made fine and placed on compactly, leaving sufficient space for watering. The drainage also should be attended to, any accumulations of dirt being removed from the outside of the pot by washing. Where there is a house for forcing this useful plant, and the fruit is required ripe early, the plants may be introduced, it being necessary that they be raised near to the glass on shelves with means of admitting air freely. A temperature of 50° is sufficient to commence with, admitting air freely above that heat, not allowing an advance above 65° without liberal ventilation. When the flowers are opening the temperature may be raised to 55°, and 60° to 65° in the daytime; and when the fruit commences swelling, 60° to 65° at night and 70° to 75° by day will be necessary. Supply liquid manure, and secure a genial atmosphere by lightly syringing overhead, and damping available surfaces in the morning and afternoon. When the fruit is ripening a drier condition at the roots and in the atmosphere will be necessary. The

general stock of plants may be plunged in ashes in cold frames, exposing them fully when the weather is mild. Where frames are not at command the pots should be plunged in ashes in a sheltered position, and in severe weather a covering of mats or dry fern will afford the needful protection.



MR. PETTIGREW AND BEE SHOWS.

AS a young bee-keeper I beg to tell Mr. A. Pettigrew that he is mistaken as regards the work of the British Bee-keepers' Association through their tents. I can state without fear of contradiction that never in the memory of man has there been such a desire to keep bees as at the present time. In this district people have been so encouraged in bee-keeping as taught through the tents, that the agents in the north of Ireland have had to repeat their orders again and again for bar-frame appliances, as Messrs. G. Neighbour & Sons could testify. Further, new manufacturers have started in all parts of the country; and besides all this I have almost daily applications for instructions concerning the bar-frame hive. When Mr. Pettigrew says that the tent manipulations tend to frighten people, I am tempted to ask him if he is serious. As regards sectional supers, nothing could be more taking than they are, and those who exhibit them at shows are pressed all day to dispose of them; while on the other hand, few "spear the price" of a glass super 21 lbs. at 2s. per lb., or a big straw skep filled with honey, brood, bee-bread, &c. Mr. Pettigrew does not like the honey-extractor, as he says it throws out crude honey. But can he not wait until it is sealed, then uncap it and extract it? It would scarcely be crude honey then. Is not honey in frame hives as good as honey in straw skeps? Having learned much from the British Bee-keepers' Association I must protest against Mr. Pettigrew, in his enthusiasm for the straw skep, trying to throw cold water upon a system that for pleasure or profit is in the estimation of thousands the best that has yet been introduced. Mr. Pettigrew is no doubt an excellent judge of bees, but many dispute his competency to be a sound and impartial judge of systems.—COMBER, Co. Down.

A RETROSPECT.

THE season of 1881 has been favourable for honey-gathering in some localities and very unfavourable in others. In the south of England and in the East Riding of Yorkshire, in Lincolnshire, and other parts bordering the German Ocean, bees on the whole have done well, and, so far as I can learn, the bee-keepers in those parts are satisfied with their harvest of honey. The bee and honey exhibitions in London and at Louth, Lincolnshire, were considered good and satisfactory. In many other parts of England, bees, during the hot weather in June, gathered great stores of honey, and thereby created great interest in apian circles and expectations of large profits; but in the flush and glut of honey from white Clover the weather became bad and did not improve till the Clover season ended; and as hives were then full of bees, and as bees in summer need and consume much food, their large stores were soon made less. During the last half of July and all August bees lost weight very fast. Though the season has been encouraging from some points of view, it cannot be considered a first-rate one for honey in some of the midland and northern counties of England. The quality of the honey taken, however, has been excellent.

In this neighbourhood in the month of May the aphid or plant louse which produces "honeydew" appeared on the leaves of Sycamore trees, and a little of its produce was gathered by bees, which partly discoloured better honey stored with it in the combs. Honeydew on trees near an apiary is a great nuisance and discouragement to many bee-keepers.

The Scottish bee-keepers, who during the last dozen of years have been favoured with some good seasons for honey, while the English have had to contend against some very unfavourable ones, have this year been more unfortunate than we, for the honey season in the north has been a failure. Even on the moors in Scotland this year bees gathered little if any honey at all. In the north of England no heather honey has been obtained this year.

From Ireland I have not had any particulars as to the success or non-success of bee-keepers there this year. I have seen some Irish honey of this season good enough of its kind, evidently gathered from the yellow weed of cornfields, known by the name

of Ketlock or Field Mustard. This plant yields rather clear honey with a greenish or yellowish tint, and does not taste well beside honey gathered from fruit trees and Clover fields. Though the honey of Ketlock is not first or second-rate, yet fields of Ketlock in the neighbourhood of an apiary are of great value to bees, for they yield much honey and pollen when the fruit blossoms disappear and before the white Clover comes into flower.

We are all glad that 1881 has given English bee-keepers some very good honey and great encouragement to look hopefully forward to future years.—A. PETTIGREW.

A RARE AND UNPLEASANT INCIDENT TO A QUEEN BEE.

[A Translation from the "Bienenzeitung." Communicated by Mr. Alfred Neighbour.]

I AM always pleased to look at queen bees, but Tuesday, the 12th July last, formed an exception. On that day, between five and six o'clock in the afternoon, I discovered a queen in my garden about fifteen paces from the place where my hives are kept, resting on the ground and surrounded by a cluster of bees, to which my attention was directed by a number of workers hovering over the queen. The bees behaved exactly as they do when a swarm loses its queen, but I was quite certain that no swarm had issued from any of my colonies. I at once thought of a stock from which the queen had been removed twenty days previously. In this hive a young queen appeared on the 7th July, but the bees did not tear away the superfluous royal cells until the 10th July. On that day the weather was most unfavourable, nor did any drones venture out of their hive on the 11th, but I confidently expected the young queen of this stock to become impregnated on the 12th July, which was a lovely day. I picked up the poor queen, and finding that one of her wings was dislocated I put her into a queen cage, which I fixed inside the hive above the comb bars. The bees surrounded the cage joyfully; and as the queen did not try to get away from them, but evidently allowed herself to be fed, I liberated her a few minutes afterwards, and I soon saw her walking about among the bees.

It had to be ascertained now whether the queen was incapable of flying when she left the hive or whether she had met with an accident after the act of impregnation. Unfortunately the former turned out to be the case, for on the following day (Wednesday) I found her again in the garden at the same time running backwards and forwards alone, but some workers were hovering over her again, which attracted my attention. I picked up the queen, who was now minus one of her wings, and allowed her to enter the hive by the entrance. She was again well received by the workers.

On the following day (Thursday) I noticed nothing unusual in the morning, and in the afternoon I was obliged to leave home. When I returned late in the evening I did not think it necessary to examine the interior of the hive, as the outside presented its customary appearance. I looked for the queen on the ground in the garden, but she was not to be found there. At half-past seven the next morning I paid a visit to my colony whose existence was in danger, and as soon as I opened the hive I knew at once that the stock was without a queen. I found the queen on the ground in the garden for the third time, surrounded again by a few workers. Of course she had not left the hive the same morning, but the previous afternoon, which accounted for the colony being in such an excited state. Knowing that it was impossible for the queen to become fertile on account of her being unable to keep on the wing I placed her in a queen cage among the bees, and a few hours afterwards I introduced a fertile queen in her place.

Though this is a case of rare occurrence, nevertheless it will show that when a queen leaves the hive on her wedding trip she remains in communication with her colony by worker bees which accompany her. This was the interesting part of the affair, which inclines me to hope that queen bees do not so easily lose their way and perish, as is often stated in books on bees.

It was the first time that I have lost a young queen, and in this case it was perhaps through some fault of my own, as I performed some operations on the stock between the time of the queen leaving the cell and her wedding excursion. The exterior of the hive was, indeed, not interfered with, but I made some alterations in the interior, during which the wing of the queen may have become damaged by the workers or otherwise. The queen certainly appeared faultless to me when I saw her immediately after she was hatched.

"One misfortune seldom comes alone," and this saying seems to be true with regard to bees also. Last summer this same colony killed their own queen—the best one I possessed—after I had deprived them of all their honeycomb, which was replaced by empty combs, of which I had a sufficient number from previous had times to enable me to make artificial swarms. When I gave them a new queen and liberated her after two days' confinement the bees immediately attacked her, and would have killed her if I had not rescued her from their fury in time. After this a royal cell was inserted, which was very late in hatching, and when at length the queen made her appearance she first laid drone eggs only, but afterwards she also produced workers. She did not prove very fertile, however, so that her population increased but slowly this spring. I therefore removed the queen, leaving the colony to rear a new one. What happened to this

queen has just been related. The new queen having been accepted by the stock, I trust all its troubles will now be at an end.—(Signed) THD. ZINCK, Kleinheilbach, 18th July, 1881.

TRADE CATALOGUES RECEIVED.

Barr & Sugden, 12 and 13, King Street, Covent Garden, London.—*List of Specialities.*

Ewing & Company, Eaton, Norwich.—*Catalogue of Roses, Fruit Trees, and Shrubs.*

George Cooling & Son, Bath.—*Catalogue of Roses, Fruit Trees, and Hardy Shrubs.*

Dammann & Co., Portici, Naples, Italy.—*Catalogue of Flower and Vegetable Seeds.*

Ormiston & Renwick, Melrose, Roxburghshire.—*Catalogue of Trees and Shrubs.*

Kelway & Son, Langport, Somerset.—*Catalogue of Gladioli.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (J. F.).—There is no book in English of the exact nature of the French work you name, which is not at all a complete work, and not likely to be translated and published in this country. If you do not possess the "Cottage Gardener's Dictionary," your gardener will find it very useful. It can be had post free from this office, price 7s. 2d. A work on Lilies likely to suit you will be "Notes on Lilies and their Culture," by Dr. Wallace, post free 5s. 6d., from the New Plant and Bulb Company, Colchester. The "Vine Manual," published at this office, price 3s. 2d., contains reliable information.

Treatment of Orchids (J. B.).—The Stanhopea may be allowed to complete its growth in the stove, supplying water freely but judiciously. When growth is completed it may still be kept in the same structure, but a drier position should be assigned to it, also greatly diminishing the supply of water to the roots to insure a thorough rest. The Oncidium would be better grown in a pot, providing plenty of drainage and a compost of peat and sphagnum. Both would thrive in the same house.

Rose Cuttings (Cuttings).—We also inserted cuttings at the same time and in the same manner that you have done, but we managed them better, as we did not allow the soil to become parched, and we had no Mustard seed mixed with it. Our plants are now established in pots, and some of them are producing flowers. Remove the glass, water the soil and keep it moist, the box being wintered in a cold frame, and pot off the plants when they commence growing in the spring. The method of striking Roses is a good one, but you have not carried it out properly. Two good early dessert Apples are Irish Peach and Kerry Pippin; two large culinary Apples, Gloria Mundi and Warner's King.

Pine Apples (F. C.).—The work that you have ordered will give you all the details of culture. If you make a pit in your house—that is, enclose a space with walls so as to form a pit 4 feet deep, and fill it with leaves for affording bottom heat, and can maintain a minimum atmospheric temperature of 65° in the winter, you may grow Pines in the house; but you can scarcely expect in so small a structure to grow Melons and Grapes also. If Vines are attempted the rods must be turned outside in the winter and be wrapped with haybands, as a temperature suitable for Pines would be too warm for them; the temperature would also be too warm for Peaches. You might grow Melons by training a plant or two thinly on the roof, also on the back wall. A well-grown Pine Apple is esteemed by many the richest of fruits, and is totally distinct in character and flavour from all others. We have known amateurs to succeed in growing a few Pines in a house not larger than yours, but have seldom considered the space was occupied profitably.

Vines Unhealthy (Idem).—We have seldom seen worse wood than the specimens you have enclosed. It is both weak and immature. It is impossible for such wood to produce good Grapes. Strong young Vines would in all probability give you greater satisfaction than those of which you have sent us portions. It is not at all unusual to see Black Hamburgh Grapes 1 by 1½ inch in diameter.

Hotbeds (Idem).—The leaves should be used moist, but not very wet. Oak or Beech leaves produce a more steady and lasting heat than manure does, but the best hotbeds are made with a mixture of the two in about equal parts. Woodlice may be entrapped by placing boiled potatoes in flower pots and covering the potato with loose dry hay. If these are examined frequently numbers of the insects may be destroyed.

Sowing Pansy Seed (M. E. H.).—If Pansy seed is sown thinly in boxes in April, the plants being raised in a cool frame, and subsequently transplanted in a suitable position outdoors, they will flower freely during the summer. Seedlings grow much more freely than plants do that are raised from cuttings, but a great number of seedlings are usually worthless from a florist's point of view. If the young growths are pulled from the old plants now many of them

will have roots attached, and if these rooted slips are planted deeply in gritty soil they will grow freely. If strong seedling Pansies are required for flowering in the spring the seed should be sown in a cool position soon after it is gathered from the plants.

Bone Meal for Lawns (F. R.).—Bone meal is an excellent manure for lawns, and if you scatter 56 lbs. very regularly on the lawn now, and give a similar dressing in March, it can scarcely fail to prove beneficial. The benefit, however, would probably be still more marked if you could mix the bone meal with very fine soil and spread the whole on the surface a quarter of an inch thick, or even less at the present time; in this case a second dressing of the bone meal would probably not be required in the spring. If it is—that is, if you do not use the soil, add to the bone meal 10 lbs. of nitrate of soda for the spring dressing.

Potassic Nitrate (A. S.).—Considerable alterations have been made in chemical nomenclature of late years, and the name you mention is a case in point. The old chemical name of nitre or saltpetre was nitrate of potash, now it is termed potassic nitrate. Other examples are the following—Sulphuric acid (oil of vitriol) is now dihydric sulphate; nitric acid (aqua fortis) is hydric nitrate; acetic acid (vinegar) is hydric acetate; carbonic acid is carbonic dioxide or carbonic anhydride; oxide of calcium or lime (quicklime) is calcic oxide; and chloride of sodium (common salt) is sodic chloride. An elaborate comparative table of common, old, and new names for chemical substances is given in the twelfth edition of "Johnstone and Cameron's Elements of Agricultural Chemistry and Geology," published by Messrs. Blackwood & Sons, Edinburgh and London.

Sashbars for Glazing (F. J.).—The rafters referred to were for supporting the lights; if you glaze from the sashbars, which you may safely do, 4 by 2-inch bars will suffice for your roof, especially if they are kept in their positions, as they must be, and supported by a bar of T iron affixed to the bars in the inside of the house. Ordinary flat bars will not be strong enough. The holes for the screws must be made in the iron with great exactitude, or you will have a difficulty in glazing.

Brachycome iberidifolia (X. F. Z.).—The Australian annual of which you desire information is, we presume, *Brachycome iberidifolia*, as we know of no other having flowers so much "like a *Cineraria*." It is a native of the



Fig. 68.—*Brachycome iberidifolia*.

Swan River district. It is quite hardy, and is very attractive in borders when the variously tinted purplish or lavender flowers are expanded. It thrives in almost any light soil, but excessive moisture is very injurious to it. Sow the seeds in spring either in the border, or earlier in pans under glass, transplanting the seedlings when the weather is suitable.

Packing Grafts for Ceylon (J. C.).—If you tie wet moss round the end of each and envelope it closely in skin, indiarubber, or oiled silk, and also wrap the same material round the grafts, we think they will not be dried in transit, especially if they are packed in a closely fitting tin-lined case; nor do we think they would fail if packed in damp cocoa-nut fibre refuse, the cuttings being placed in layers and quite covered with the material. Your other question will be answered next week.

Geometry (A Young Gardener).—You will find Gill's "School of Art Geometry" a very useful elementary work; it is published by Philip & Son, Fleet Street, London, or Heywood, Manchester, price 1s.; or if you send four penny postage stamps to Messrs. W. and R. Chambers & Co., Paternoster Row, London, and ask them to send you Nos. 91 and 92 of "Information for the People," you will obtain instruction that will be serviceable.

Azalea Leaves Falling (F. J.).—The plants are semi-deciduous, and a number of leaves always fall at this period of the year. There is, however, a difference in this respect between the varieties, some retaining their foliage better than others; the mode of culture also has an influence on the matter, unhealthy or injudiciously treated plants losing more leaves than plants do that have careful attention in potting and watering. Chrysanthemums lose their leaves in consequence of the plants having received a check at some period during growth, and the flowers come deformed by the same cause; a sudden and rather sharp frost also often injures Chrysanthemums and checks the free expansion of the flowers.

Grapes Decayed (E. D. C.).—You do not afford sufficient data for enabling us to answer your question satisfactorily. If you will state how the border was made and drained, with the nature of the compost, and also send fair examples of young wood and foliage, we will give the subject our best attention.

Picotees (D. N.).—If the plants are large we doubt if you would derive any advantage by taking them up and potting, as a number of them would probably die; but small plants may be lifted safely and wintered in cold frames. It is too late for layering the growths now. You had better remove any decayed leaves and cover the stems, not the foliage, with cocoa-nut fibre refuse, or, failing this, light gritty soil, through which the rain passes freely, and the plants may pass the winter safely. We have seen them thus preserved in colder districts than Staffordshire.

Tuberous Begonias (Subscriber).—The note to which you allude has reference to these plants as grown outdoors during the summer, but we presume you require instruction on growing the plants in pots. The tubers may be wintered in a greenhouse in the pots in which they were grown. In the spring they require to be started in heat, such as is afforded by a Cucumber frame or a cool propagating house, removing them from the old soil and placing in pots according to their size, using a compost of peat, loam, and leaf soil, with plenty of broken charcoal or sand. They must be watered with great care at the first, as an excess of moisture causes decay. When the plants are growing freely they must be shifted into larger pots, employing richer and stronger soil, keeping them in a genial atmosphere and a temperature of from 55° to 60° at night. Further particulars will doubtless be given in time to be of service to you.

Roses for Exhibition (S. B.).—If you desire to exhibit twelve varieties you must grow twenty-four or thirty-six to enable you to do so with any measure of success. You cannot do better than select the Hybrid Perpetuals in the order they are named in the recent Rose election which is published on page 306, our issue of the 6th ult. The following thirty-six varieties are published in the order in which they were named in the election of Teas and Noisettes, and you cannot do better than plant the number you require of the varieties first-named if you do not desire to plant them all:—Catherine Mermet, Souvenir d'un Ami, Devoniensis, Gloire de Dijon, Marie Van Houtte, Niphetos, Perle des Jardins, Maréchal Niel, Souvenir d'Elise, Rubens, Souvenir de P. Neron, Jean Ducher, Belle Lyonnaise, Madame Willermoz, Madame Lambard, Madame Falcot, Anna Olivier, Céline Forestier, Madame Margottin, Alba Rosea, Madame Berard, Comtesse de Nadailac, Madame C. Kuster, Triomphe de Rennes, Homère, Adam, Madame Hippolyte Jamain, President, Bouquet d'Or, Boule d'Or, Madame Welsh, Jean Pernet, Marie Guillot, Madame Bravy, Perle de Lyons, Isabella Sprunt.

Scale on Phormium (W. B.).—It can be readily washed off with a solution of softsoap or Gishurst compound at a strength of 2 ozs. to the gallon of water and applied when warm with a sponge. It is almost a wonder you did not think of this simple remedy. You had better, however, not let much of the solution drain to the roots. Even sponging with pure water would be of great benefit, as the scale is so readily displaced from the leaf you have sent. The plant of which you desire the name is *Sedum Sieboldi*.

Red Spider on Vines (W. B. C., Ramsgate).—You have made your case quite clear. When two or three Vines only are attacked with red spider the most efficient mode of riddance is to sponge the leaves with a solution of Gishurst compound at the strength of 2 or 3 ozs. to a gallon of water, or other approved insecticide, and not syringe them afterwards. Two or three hours thus spent is labour well applied in a case of this kind, as we have proved by experience. The insecticide can, however, be applied much quicker by a vapouriser such as was advertised in our columns a short time ago. As soon as the leaves are ready to fall gather them from the Vines and destroy them; after pruning well scrub the rods with soapy water as hot as the hand can bear for a moment or two, and then paint them with sulphur, with a little clay added to make it adhesive.

Names of Fruits.—We have many times notified that only six varieties of fruits can be named at once; still large packages reach us, the contents of which cannot be examined. Some fruits are not named because the sender's name does not accompany them, and we cannot always determine to whom the respective parcels belong, even by the aid of letters received by post. Pears, we have previously intimated, ought to be ripe or approaching ripeness when sent, or a number of them cannot be identified. All packages must be carriage paid; unpaid parcels are sent every week that are not taken in. The fee for naming fruit to non-subscribers is 5s. It is important that these conditions be attended to for preventing disappointment. (J. Ellis).—1, Dumelow's Seedling; 2, Stirling Castle; 3, Court Pendu Plat; 4, Pearson's Plate; 5, Besspool; 6, Beauty of Kent. We cannot name the others. (Crediton).—It is quite impossible to recognise your parcel, as several hampers have been received without names in them, and as the direction labels have been destroyed we cannot trace the districts from which the parcels were sent. If you send other specimens with a note enclosed we will endeavour to name them for you. (Reader).—1, Yorkshire Greening; 2, Norfolk Beefing. (J. H. P.).—1, New Northern Greening; 2, not known; 3, Sturmer Pippin; 4, Verulam; 5, Beurré d'Arenberg; 6, Reinette Van Mons. (F. J.).—1, Van Mons Leon Leclerc; 2, Emperor Alexander; 3, Reinette du Canada; 4, not known; 5, Beauty of Kent; 6, Cox's Orange Pippin. (J. E.).—1, Adams' Pearmain; 2, London Pippin; 3, Coe's Golden Drop; 4, Braddick's Nonpareil; 5, Golden Russet; 6, Nonpareil. (J. T.).—1, Beurré Sterckmans; 2, Beurré Diel; 3, Colmar Van Mons; 4, Beurré Scheidweiler; 5, Beurré d'Arenberg. (G. S.).—1, Winter Ambrette; 2, Marie Louise; 3, Beurré Sterckmans; 4, Beurré Clairgeau; 5, Seckle; 6, Colmar Delahaut. (G. P.).—2, Autumn Red Calville; 3, Reinette du Canada. Pears: 1, Epine Du Mas; 2, Emile d'Heyst; 3, Beurré Scheidweiler. The others not known, probably local varieties. (G. R.).—1, Napoleon; 2, Beurré Clairgeau; 3, Beurré Diel. (H. H.).—1, Beurré d'Amanlis; 2, Swan's Egg. (Ed. Leigh).—We are most willing to assist our subscribers in determining the names of fruits, but it is imperative that they comply with the above conditions; large quantities of fruit cannot possibly be examined. (John Watton).—We regret we cannot aid you, as the numbers were all off the fruits, and were mixed together at the bottom of the box owing to the shaking in transit. If you will send other specimens with the numbers attached to them they shall have our careful attention.

Names of Plants (F. G.).—1, *Acer platanoides laciniata* (Eagle's Claw Maple); 2, *Mesembryanthemum imbricatum*; 3, *Cupressus Lawsoniana fragrans*; 4, *Sequoia sempervirens*; 5, *Abies Albertiana* (Prince Albert's Fir). (R. C. D.).—The shrub is *Baccharis halimifolia*, a native of North America, and known in English gardens since 1863. (W. D. H.).—The flower was in a complete state of decay, but it resembles a Phajus. (J. H.).—*Hedera Helix palmata*. (G. D. T.).—The Fern is *Lygodium volubile*, a native of the West Indies and South America. (Somerset).—*Chrysanthemum coronarium*.

COVENT GARDEN MARKET.—NOVEMBER 2.

TRADE quieter, with no alteration in prices.

		FRUIT.					
		s. d.	s. d.			s. d.	s. d.
Apples.....	½ sieve	1 0	4 6	Lemons.....	per case	18 0	to 30 0
Apricots.....	doz.	0 0	0 0	Melons.....	each	1 0	2 0
Cherries.....	per lb.	0 0	0 0	Nectarines.....	dozen	0 0	0 0
Chestnuts.....	bushel	16 0	0 0	Oranges.....	per 100	0 0	0 0
Currants, Black..	½ sieve	0 0	0 0	Peaches.....	dozen	6 0	15 0
" Red.....	½ sieve	0 0	0 0	Pears, kitchen..	dozen	1 0	1 6
Figs.....	dozen	0 6	1 6	dessert.....	dozen	1 0	2 0
Filberts.....	per lb.	0 0	0 9	Pine Apples....	per lb.	3 0	5 0
Cobs.....	per lb.	0 0	0 9	Strawberries....	per lb.	0 0	0 0
Gooseberries....	½ sieve	0 0	0 0	Walnuts.....	bushel	7 0	8 0
Grapes.....	per lb.	0 6	4 0				

VEGETABLES.

		s. d.				s. d.	
		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2 0	to 4 0	Mushrooms.....	punnet	1 0	to 1 6
Asparagus.....	bundle	0 0	0 0	Mustard & Cress..	punnet	0 2	0 3
Beans, Kidney....	per lb.	0 3	0 6	Onions.....	bushel	3 6	5 6
Beet, Red.....	dozen	1 0	2 0	Pickling.....	quart	0 0	0 5
Broccoli.....	bundle	0 9	1 6	Parsley.....	doz. bunches	3 0	4 0
Brussels Sprouts..	½ sieve	3 0	3 6	Parsnips.....	dozen	1 0	2 0
Cabbage.....	dozen	0 6	1 0	Potatoes.....	bushel	2 6	4 0
Carrots.....	bunch	0 4	0 6	Kidney.....	bushel	3 0	4 6
Capsicums.....	per 100	1 6	2 0	Radishes.....	doz. bunches	1 6	2 0
Cauliflowers.....	dozen	0 0	3 6	Rhubarb.....	bundle	0 4	0 6
Celery.....	bundle	1 6	2 0	Salsafy.....	bundle	1 0	0 0
Coleworts.....	doz. bunches	2 0	4 0	Scorzoneria.....	bundle	1 6	0 0
Cucumbers.....	each	0 4	0 6	Seakale.....	basket	2 0	2 3
Endive.....	dozen	1 0	2 0	Shallots.....	per lb.	0 3	0 0
Fennel.....	bunch	0 3	0 0	Spinach.....	bushel	3 0	0 6
Garlic.....	per lb.	0 6	0 0	Tomatoes.....	per lb.	0 8	0 9
Herbs.....	bunch	0 2	0 6	Turnips.....	bunch	0 4	0 0
Leeks.....	bunch	0 3	0 4	Vegetable Marrows	each	0 0	0 1



POULTRY AND PIGEON CHRONICLE.

IMPROVEMENT OF THE HAMPSHIRE AND WEST COUNTRY DOWN SHEEP.

(Continued from page 391.)

IN continuation of the quotation from the paper read at the Botley and South Hants Farmers' Club relating to the raising and fixing a new type of sheep to be called the Somerset Down. It says, "It should, however, be only attempted by an owner of a farm or the holder of a long lease, for with all the experience at command of those who have gone before us it would take from fourteen to sixteen years to fix a new type of sheep for the purpose of improving the style and character of the Hampshire Downs. We therefore propose that in case only one person should engage in the raising a new breed that three selections of not less than twenty-five Somerset ewes each should be obtained from three of the best flocks, and that three ram lambs should be also selected from the best Hampshire Down flocks, and in mating the animals this would furnish a change for three years. In selecting the ewes these should be maiden animals, because if they have never bred a lamb previously the full potency of the ram would be obtained (a matter of the highest importance in this case) as to fixing the colour of the face and legs of the offspring. We have, then, in fact, three separate flocks, and from the offspring of each we have the opportunity, in mating the animals, of securing a change of blood without deviating from the cross or object in view, and if the offspring of each flock are marked it will be of some consequence in the future in various ways. For it is necessary that all defective ewes (of each family), either in colour or character, should be withdrawn, and that the most masculine and robust male animals only should be selected for use, keeping steadily in view colour, form, and weight for age. After using the above precautions we need not be afraid of what is called in-and-in breeding, for when we have obtained a good family likeness of the type we require we must not think of change of blood outside the boundary; but we may, after the type is fixed and the increased stock has passed into other hands,

go to them for a change, which may prove advantageous through the influence of soil and climate on which they may have been reared."

Quite irrespective of the opinions of the reader of this paper a discussion ensued by various practical flockmasters, and a unanimous resolution was passed at the meeting, and moved by Mr. Blundell, as follows:—"That in the opinion of this Club cross-breeding is a matter of great importance, and it is to be hoped some person or persons will be found who will take up the question of fixing a desired type for renovating and improving the Hampshire Down breed of sheep." We cannot give the discussion in full, but we cannot omit a few practical observations made by Mr. J. D. Barford, V.S., of Southampton, who said the subject was a very wide one, embracing the relative merits of the pure breeds and cross-breeds of the country, with especial reference to the Hampshire Downs. In commencing a new breed, or trying to improve an old one, there was nothing so important as to study the relative advantages of the different animals adapted for the soil on which they were to be reared. He left to more practical men than himself to say if a new breed of sheep was required here; but he could say from experience there were improvements needed in the present type, but these improvements must be carefully begun, breeders being very tenacious that the present type and contour of the Hampshire Downs should not be materially altered. He alluded to the present large per-centage of losses in lambing, and said the present fine prize specimens of Hampshire Downs seen in the markets were more costly to obtain than fine animals in other types, such as the Leicesters and white-faced breeds. The relative influence of the male and female in the produce was a very difficult question, but the broad rule laid down by Mr. Blundell in his paper would probably be generally a correct one. He had abundance of evidence in regard to all breeds of animals that the impress of the parent was made apparent in future generations. The 89 per cent. of lambs mentioned was far too low, and said these losses were worthy of most serious consideration, and indicated some defect in the Down breed. Most unquestionably by careful selection and mating the shape could be improved, and in improving it they would be doing great service to the breeders of the district.

Before proceeding further with the subject we will state the defects which are to be found in the Hampshire Downs, or to which they are reverting in consequence of the tendency to depreciation. The faults of the original breed were the shallow chest, the straight ribs, the light scrag and bare shoulder top, and the breeding their lambs at a late period, with but very few twins, and a weak constitution, which subjects the animals to great losses in the adults as well as in the lambs at different periods. Practically, however, we have found that in improving the shape of the animals we improve their constitution; but let us inquire how the outline and character are to be improved. If we take the long-woolled breed for the purpose we have more lambs, but we deteriorate the quality of the flesh by laying the fat on upon the outside of the carcass, the loose open wool is prejudicial in adverse climates, and the lambs come late, although we obtain a large proportion of twins. Still, as in the Oxford Downs, we have a better outline and heavier weights for age. Again, as various flocks at present contribute animals to the prize pens in the show yards, and are called Hampshire Downs, but they exhibit the use of long-woolled blood in their parentage, still they attract the eye of the public, and often the approval of the judges; but they are not Hampshire Downs or West-country Downs as we recognise them, nor as they are really required for flocks to be reared and fed on the chalk hill farms in various districts; in fact, our definition of a typical Hampshire or West-country Down sheep is, as we have before alluded to, and which we have called the Somerset Down, which can only be obtained by mating the improved horned Somerset ewe with a short-woolled Hampshire Down ram, and producing as nearly the style and type of the late Mr. Humphrey's breed as possible.

We must now allude to the character of the improved pink-nosed Somerset breed, which may be described as follows: Some of the very best flocks of which we have lately visited are now lambing, and show a great length of body presenting a barrel-like form, deep in the chest, a well-covered shoulder top, and short full scrag, with wide hips and short legs; the body well covered with short fine wool, coming down before and behind to the knee and to the hock. This is their formation, but their attributes are many and valuable such as no other breed can reach, except a few of the best horned Dorsets. They are the most prolific, not only yearning at the earliest period a greater number of twin lambs than any other breed, but will, if required, yield two crops of lambs within the year; added to this fecundity they are the best of nurses, furnishing more

milk than any other breed, and at the same time will fatten quicker whilst suckling their lambs than any other known breed. They are of excellent constitution and very hardy, being frequently reared on very exposed hill farms in the south-western counties. When fat they yield flesh with the fat most intimately mixed with the lean, and furnish joints for the table yielding a larger amount of rich gravy than can be obtained from the mutton of any other breed of sheep, although rather coarser in the grain than the meat of the pure-bred Sussex Downs. We have described the advantages of the Somerset horned ewe in detail, because so few breeders understand their characteristics and attributes, and because we can obtain what we require in a new type from no other source or breed; and to illustrate this let us ask what we require the Hampshire Down ram to contribute towards the fixing the new type. We desire to obtain his colour both of face and legs, and his hornless or polled head, and character only; every other point of consequence is to be found in the description we have given of the Somerset ewe. As it is admitted by all professional and experienced practical men that the male animal contributes in cross-breeding the colour and outward characteristics in a superior degree, and that the female may be said to furnish nearly all the important functions of the animal, such as constitution, internal structure, together with breeding and milking capacity. But we can assure breeders that this cannot be obtained with absolute certainty; it must, therefore, in all cases be supplemented by judicious selection, following our object in view. One thing, however, is certain, that if we wish for complete success we must select maiden ewes to breed from, for in case we take aged animals which have previously bred to other rams than the sort we require, no defined style or type can with reason be expected in the offspring; and we have no hesitation in saying that to this circumstance the failure of many breeders who have attempted the cross-breeding of sheep may be attributed.

WORK ON THE HOME FARM.

Horse Labour.—The weather upon the whole has been so favourable for the autumn tillage by steam power that it has been continued until the time we write. The horse labour has, however, of necessity been employed lately in preparing the land and drilling the Wheat. Some farmers say that the land is too dry for Wheat-sowing, but that is not our experience. We have known several seasons during the past fifty years when fine dry weather without frost has prevailed through October and the first half of the month of November; it, however, requires different management to some extent. Where the land is not ploughed and pressed and sown after the presser it should be drilled so deep that the young plants may root in the subsoil not moved by the last ploughing, in order that they have firm holding in the soil. When drilled shallow in light fine tilth after the rains and frosts of winter the plants are very liable to be lifted out of the soil. Another point is that in the case of a very light dry seed time for Wheat a great number of weeds will often prevail in the spring of the year. If the corn has not been drilled at 10 or 12 inches apart the land cannot be effectually horse-hoed in order to destroy the weeds, more particularly if the Wheat proves what is termed winter-prond. It later on frequently turns off very sickly and loses colour, in which case if not drilled so as to be effectually horse and hand-hoed the weeds will overpower the crop. Even if the land should be free from weeds the horse-hoeing is nevertheless a necessity, in order that the surface soil may be moved and thus give life and energy to the growth of the Wheat, without which it would continue to lose colour and produce a small ear. Practically, an effectual horse-hoeing is of far more consequence than a dressing of nitrate of soda under such circumstances.

We have personally inspected much land lately, and we find that whole districts are almost worthless as arable land for want of a dressing of chalk or lime, the latter being well adapted for the heavy lands whether resting on chalk or clay. We have seen hundreds of acres of Wheat land where last year the crop was hardly worth harvesting in consequence of blight accelerated, if not actually caused, by want of chalk. We find a general impression prevailing that when chalk underlies the clay the land cannot require chalk. That is a great mistake, for land containing rubble only is called chalk, and is actually expected to assist vegetation, when it has been for long periods robbed of its carbonate of lime and the plant food which it originally contained by a long series of cereal crops, and has become comparatively worthless. As if to teach the farmers a lesson the chalk dells and pits of former days, which are numerous, should show them that formerly the farmers were wise in their generation, and used an abundance of chalk in the districts where its use is now seldom or never attempted. We therefore advise the home farmer to look well to his crops, and notice the kind of weeds which prevail, and which exhibit the want of chalk; but we must refer the reader to our article upon chalking given in this Journal on the 20th and 27th days of November, 1879. In fact, we go so far as to say that it is impossible to farm profitably where land is exhausted of chalk and lime, because corn or grain of any kind will not yield and root crops cannot succeed in its absence. On heavy land it is also necessary

that the small ten-furrowed ridges should be made the rule. Although the water may not often stand upon the land, yet it passes away and does not charge the subsoil so much when it can pass quickly off the surface by the action of land and water furrows properly made out. It is, however, of still more consequence when the strong land rests upon strong clay, for even after it has been properly drained the surface-lying of the land cannot be neglected with impunity.

Hand Labour.—The women and boys are assisting the men in pulling and storing the Mangold crop, which we are glad to say in the mixed soils on the vale farms of the southern and midland counties is nearly or quite an average produce. Should this crop be required for feeding on the land in the spring the roots may be pitted in the same manner as we find necessary in some cases to treat them and preserve the Swede crop, Carrots, &c., especially upon farms where ground game is reared to any considerable extent. In other cases the wood pigeons prevail to an extent sufficient to cause immense injury to the root crops during the winter months. Water-furrowing on the Wheat land will now be going on; also hedging, ditching, &c., as well as work in the woodlands by converting the Hazel and other woods into hoops, hurdles, hop poles, &c., The cutting of Ash and Elm timber may now be done with better effect than in spring.

Live Stock.—All fattening bullocks which have been feeding on grass land during the summer should now be sold if ready, or otherwise be put into the boxes or stalls, the former being the preferable mode of management. As barns are not now wanted in winter they can be made to act as cattle boxes during winter, spring, or summer, and by having moveable fittings they may also be filled with corn for early threshing, and thus be made available as harvesting barns and cattle-feeding apartments combined—in fact this has been our plan of proceeding for the past thirty years. Milch cows and young stock should both lie in at night, the former in their stalls, the latter in littered yards and sheds, and receive their roots, fodder, and cake, which will then be used with advantage. The fattening sheep must now be treated as we have often stated, being fed with cut roots and cake or bean and maize meal mixed with the roots twice a day, and twice with hay and straw chaff mixed with the cut roots. Down ewes must now be carefully treated during pregnancy, and if they have not been allowed hay at night time they will eat a fair quantity of sweet straw chaff—enough to keep them in health; but in case the wet harvest has injured the straw it may be spiced with some of the foods now sold for the purpose, the aroma from which makes it attractive and more palatable for the animals, especially when feeding on grass in the daytime. But the home farmer must beware of trusting the ewes upon the water meadows, for there have been instances of rot taking place in the present autumn where sheep were fed upon flat-lying grass land, although not under irrigation.

POULTRY AND PIGEONS

POULTRY NOTES.

A Poultry and Pigeon Show was held at Shepton Mallet on September 6th. The exhibitors have recently received a portion of their prize money, accompanied by the following curious notice:—

COPY.

"Taylor's Paddock, Shepton Mallet.

"DEAR SIR,—We beg your acceptance of enclosed cheque for prize money, and very much regret it has not been paid before; also, that we are compelled through a heavy loss, which you will see by our balance sheet enclosed, to make a reduction of 36 per cent. on all prizes. Should we in future be in a position we will pay you the balance.

"Yours truly, (Signed) W. J. N. PERRY."

We understand that an exhibitor at the late Show will lay the above document before the Committee of the Poultry Club.

EXHIBITORS are constantly troubled with the careless way in which labels are sent out by the secretaries of shows. A number are tied together in a bundle, the exhibitor's address is written on the reverse side for the return address of the birds, and so they are posted. To begin with, we are frequently charged double postage, as such a bundle is not a book, and to send it at book rate is contrary to postal regulations; but besides this, it more often than not happens that the postal address of an exhibitor is not the railway address, consequently the direction has to be altered for the return of the birds, and confusion results. Considering the high fees commonly paid for entrance, committees may surely afford an envelope to each exhibitor.

We hope in an early number to describe another most interesting and, we believe, unique "Famous Poultry Yard," that of the Rev. M. H. and Mrs. Ricketts, at Knighton Vicarage, Radnorshire.

WE remember several excellent poultry shows held at Ipswich. They fell into desuetude chiefly, we believe, from the poor attendance of visitors at them. We have received the schedule of another, to be held there on November 22nd and 23rd. Unfortunately it will clash with the old-established Show at Oakham; but November is a month in which poultry are generally in show trim, and so we may hope that it will be well filled and successful.

IN reply to the remarks of "F. R." upon our estimate of Pekin Ducks, we do not in the least deny that they are excellent layers of generally fertile eggs, though we have not found them to surpass in fertility those of Aylesburys. They are also hardy, but so, in our experience, are all Ducks, and attain maturity—or rather, we should say, large size—very rapidly. What we assert is, that this early maturity is rather apparent than real, and that birds which to the eye appear immense are only more thickly feathered, but not so large as Rouens and Aylesburys of the same age. We have seen a great inclination on the part of breeders of Ducks, not for fancy but for table, to discard our old favourites, carried away with enthusiasm for the beauty and size of Pekins. We simply warned them that there is something to be said on the other side, and that our experience leads us to think it a mistake to make all give way to the new breed before it has been thoroughly tried. As layers we find Pekins unsurpassed on a run of moderate size. On a large piece of water they do not lay nearly so well. As table Ducks we believe them to be a failure.—C.

COVERING POULTRY HOUSES—BALLAST FOR RUNS.

I WAS struck by one or two points in the advice of "C." on page 370 of your Journal, and I would like to add a few facts gathered from experience.

In the first place, for covering of poultry houses I find nothing so cheap as plain wrought iron. As soon as it is cut for the place required—for the sheeting can be had 6 feet long by 4 feet wide, or even larger—I have the pieces tarred on the inside, and they are then nailed with short clouts, and when tarred again form the cheapest and most enduring roof. I obtained the idea from Mr. John Harvey, who came into some large estates in Scotland, and in covering the farm houses he found that nothing was more lasting or cheaper than this mode of roofing.

Anybody can understand that corrugated metal requires double the quantity of flat, and there is really nothing gained by it.

On another point. When land is very light, if the surface is scratched or dug over, it is sufficient for poultry; if it is very heavy (in all probability it is clay), then by some judicious management and a small collection of rubbish, a good fire can be ignited and the clay piled round it. This when burnt forms an excellent covering for poultry yards, and a small sprinkling from time to time answers every purpose, to say nothing of the neat red appearance.

For footpaths, I find on clay that if I cut out any loose wet material and place a layer of about 2 inches of this burnt ballast on the dry ground and on this "ashpan breeze" that can be had at any gasworks, or fine ashes, however wet the weather may be, there is always a dry path. Anyone living on a clay soil will appreciate this hint.

If the poultry runs are well protected, and there is any good dry space in them, advantage may be taken by allowing the litters of young rabbits to run in them. If they are bred from the large varieties of Giant de Flanders or Leponides, I find that the stock is greatly improved for breeding purposes if they are allowed to run as soon as they are taken from the does for some months. If not frightened they do not become very wild, particularly if the same person feeds them.—THOS. CHRISTY.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at the Clarendon Hotel, Oxford, on the 27th of October. There were present the Hon. and Rev. F. G. Dutton (in the chair), the Revs. E. H. Morgan and W. Serjeantson; and Messrs. R. A. Boissier, A. Comyns, O. E. Cresswell, A. Darby, H. R. Dugmore, L. Norris, and G. Vigers.

NEW MEMBERS.—The following new Members were elected:—The Hon. Mrs. Augustus Calthorpe, Perry Hall, Birmingham; T. Jenkins, Bexley Heath, Kent; John Metcalfe, Auburn Cottage, Narborough, near Leicester. The following new Associate was elected:—James Metcalfe, 11, Sheendale Terrace, Richmond.

RETURN CARRIAGE FROM RAMSGATE SHOW.—The Secretary reported that he had written to the Secretaries of the Ramsgate

Show as directed, and had received an answer to the effect that the Station Master at Ramsgate had verbally authorised the statement made in the schedule that the South-Eastern Railway would return exhibits sent by their line from the Show carriage free; that he had further written to the Station Master at Ramsgate, and to the General Manager of the South-Eastern Railway, both of whom denied that any such authority had been given. Under these circumstances the Committee recommended that application should be made by Mr. Boissier (one of the exhibitors who had complained to the Committee) to the Secretaries of the Ramsgate Show for the payment of the amount of return carriage paid by Mr. Boissier, and decided that the further consideration of the matter be adjourned to await the result of that application.

CLUB SHOW.—The report of the Sub-Committee appointed to make arrangements for the holding of the Club Show at Cambridge, was read by Mr. Norris, and it was resolved—

"That a Club Show of Poultry be held at Cambridge on Wednesday and Thursday, January 4th and 5th, 1882, in conjunction with the Show of Pigeons and Cage Birds of the Cambridge Ornithological Society, and that the report of the Sub-Committee and Schedule of prizes prepared by them be adopted, subject to some slight alterations."

The matter was referred back to the Sub-Committee to carry the arrangements into effect.

SHOWS TO BE HELD UNDER POULTRY CLUB RULES.—An application from the Secretary of the Wolverhampton Show was considered, and it was resolved—

"That in the event of a Show being held at Wolverhampton under Club Rules as heretofore, the Club do subscribe £5 to the funds of the Show."

Applications for subscriptions from Belfast, Darwen, and Doveridge Shows, which are to be held under Club rules, were considered and granted. Communications from Witney and Wellingborough, as to holding the Shows under Poultry Club rules, were considered.

ANNUAL REPORT.—It was resolved that the annual report of the Club should this year be presented at the General Meeting at the Crystal Palace. A draft of the report was read, but the further consideration of it was necessarily postponed until the next Committee meeting, which was fixed for Monday evening, November 14th, at the Crystal Palace Hotel, at 7 P.M.—ALEX. COMYNS, Hon. Sec., 47, Chancery Lane, W.C.

OUR LETTER BOX.

Book on Turkeys (W. Fowler).—We do not know of any book treating solely on Turkeys. You had better procure from Messrs. Cassell, Petter, and Galpin the parts of the *Illustrated Book of Poultry* which contain the chapter upon Turkeys.

Beet as Food for Stock (T. P.).—There is no doubt about Beet being of higher feeding value than any variety of Mangold, but only as it contains more sugar than common Mangold. As, however, the yellow Tankard Mangold is most valuable as regards nutrition, and the weight grown per acre is greatly in excess of Beet, we should prefer it as farm produce for the feeding of stock.

Green Fodder Crops (J. Mackenzie).—We cannot recommend the Bromus Grass in preference to Lucerne, because the latter is a permanent crop when kept clean, and will give a quick succession of very valuable green fodder for all kinds of stock. We have no doubt that the damage done to the Drumhead Cabbage and sprouts was caused by small white slugs or small snails or both, which feed at night but recede and hide themselves at daytime. They may, however, probably be detected early in the morning and late in the evening, but can only be checked by hand-picking and destroying them. Your other question as it is put is unanswerable.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881. October.		Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Inches.	deg.										deg.	
Sun.		29.408	49.8	49.8	S.E.	46.5	51.9	48.5	51.2	46.8	0.192	
Mon.		29.641	37.8	37.6	N.E.	47.4	51.8	46.7	52.1	45.6	—	
Tues.		29.782	43.9	42.1	N.E.	42.2	52.0	38.4	96.4	31.9	—	
Wed.	26	30.054	45.0	42.9	N.E.	46.3	51.6	39.0	94.4	33.1	0.010	
Thurs.	27	30.225	41.7	39.6	N.E.	45.6	47.5	37.5	59.8	31.2	—	
Friday	28	30.193	41.9	38.2	N.	44.9	48.3	36.4	88.7	30.6	—	
Satur.	29	30.118	31.9	36.3	N.	44.6	45.5	34.7	89.3	30.0	—	
		29.917	43.9	42.4		45.4	49.8	40.2	76.0	35.5	0.202	

REMARKS.

23rd.—Heavy rain in morning; damp and dull throughout.
 24th.—Dull damp morning; latter part of day fine, but not bright.
 25th.—Generally fine, bright, and cold; slight showers in afternoon.
 26th.—Very bright morning; afternoon overcast, shower at 3 P.M.
 27th.—Fine bright cold morning; afternoon overcast and slight showers; fine evening.
 28th.—Fine bright cold morning; cloudy afternoon; slight rain 10.30 P.M.
 29th.—Generally fine and cold N. wind, few flakes of snow, and slight showers at times.
 Not as cold as the previous week, but still the temperature, especially by day, has been below the average; very little rain.—G. J. SYMONS.



10th	TH	Richmond Chrysanthemum Show. Two days.
11th	F	
12th	S	
13th	SUN	22ND SUNDAY AFTER TRINITY. [two days.
14th	M	Croydon and Stoke Newington Chrysanthemum Shows. Each
15th	TU	Brighton Aquarium, Walton, & Putney Chrysanthemum Shows.
16th	W	Bristol Chrysanthemum Show. Two days.

MANAGEMENT OF HEAVY SOILS.

THE question of tillage is an important one both to the gardener and farmer, and possibly many may be lamenting that this cannot be carried on in such a thorough style as formerly owing to reduced capital. If any such happen to be located on heavy soil, let me tell them that possibly poverty is their true friend. The mania for deep cultivation has in some cases been carried too far, and many a good field and many good gardens have been injured for a generation simply by attempting to make a deeper tilth. It is quite true that we cannot grow Parsnips a yard long where there is only 9 inches of soil resting on a stiff clay; but, on the other hand, there are few crops that will not succeed in such land if the cultivation is well managed, and possibly some corner may generally be found elsewhere in which to grow Parsnips.

Not only is it hurtful to turn up clay on heavy soil, but it is also hurtful to turn up the heavy soil itself more than a spade's depth unless sufficient material can be worked in to keep it permanently open so as to admit air to its lowest depths. Double-digging and trenching may be good for light hungry soils, not merely for the purpose of aerating them as is generally supposed, but because the operation gives a chance to work-in decaying matter to a greater depth, thereby furnishing moisture as well as food for the coming crop. But with heavy soils it is different. They are generally moderately rich in most of the ingredients necessary for plant life, they are retentive of moisture and of whatever is applied to them. Of course, to keep them fertile they require a corresponding amount of fertilising material applied to replace that which is drawn from them by the plants; but there is very little waste, there is no washing-out as there is with light soils, and I cannot see any advantage in breaking them up to a great depth.

We may see any season where old-fashioned farming is still carried on, that merely scratching such soils 4 or 5 inches deep with a plough in suitable weather, and a dressing of farmyard manure with an occasional liming, is followed by results at least equal to those which succeed steam cultivation and special manuring on similar soils. By double-digging heavy soil we not only bring up heavier material to the surface of that which was already sufficiently heavy, but we bury the most fertile of the soil so deeply that the air cannot reach it, and it becomes sour. Again, the clay when once broken into never drains itself so well as it did before it was disturbed, and as a loose soil is more retentive of moisture than

that which is hard, we may wait a long time in an average season before planting and sowing can be done safely.

As, with all our scheming, crops will generally be later on heavy soils than on those which are of a medium or light nature, the object should be to have them warm and pulverised by seed-time. It requires some skill and forethought to accomplish this. Anyone may manage a medium soil fairly well and pass for a good cultivator, but before he takes his credentials he certainly ought to have a trial on either a light or a heavy soil, both of which are difficult to manage in certain seasons, and the requirements of each are totally different. I have known plots of ground of both natures which have been pronounced as not worth cultivating simply because they had not been properly tried.

There is no ground so heavy that it cannot be made to produce enormous crops, and there is none so light that it cannot be made to hold moisture during a hot summer. To accomplish these objects may not be worth the cost for simple agricultural purposes in these days of cheap corn, but whenever it is desirable to have a garden in a particular position, it is certainly always worth while to make it as fertile as possible, whether it be for a source of pleasure or profit. I have endeavoured many times to guess what could have been the object of placing the kitchen garden I have to manage in the position it occupies. It certainly was not its excellent soil, for there could have been none then. I suppose it does not average a foot in depth now after, perhaps, a century's cultivation, and there is no lack of good soil in the neighbourhood, though I can only look on it and break the tenth commandment. It was not because it was convenient to the mansion—it is three-quarters of a mile away. Perhaps it was chosen on account of its adaptability for drainage; if so, I must compliment its originator, as there is a fall of about 50 feet towards the east in its length, and a considerable fall from each side to the centre; but as one of these necessarily faces the north I would rather be without it, and the incline is not favourable for wheeling and rolling. However, now we are beginning to learn how to manage it we have some splendid crops, and we find that simple cultivation answers very much the best.

The plan is to fork the ground over roughly as soon as the crops are cleared off in autumn, and if any portion requires liming it is done then; but no manure is applied at that time, as it has a tendency to keep the soil wet, prevents the ingress of air and breeds earthworms, which, whatever their beauty and utility may be in the eyes of Mr. Darwin, are not welcome guests in our heavy soil. As soon as the ground is in good working order in spring it is forked again, and yet again if the season will allow it, the manure being added at the last forking. For tender crops which do not require early sowing such as French Beans, the oftener the ground is forked the better during sunny weather in spring, thus raising the temperature of the soil. We have for several years burned as much clay during autumn and winter as we could find time for, and this, together with the ashes from the wood consumed in the operation, is both a stimulant and a rectifier of the texture of the soil.

I prefer the manure for heavy soil to be decayed, and to assist decomposition it is turned over two or three times during winter, but is not allowed to heat. It is a good plan to mix soil with it in the heap whenever it can be done.

We cannot plant such crops as Celery and Cardoons in trenches, or they would be in the clay; we therefore plant them on the surface rather wider apart than usual, and the plan answers perfectly.

Once again I would say to those having a heavy soil on a clay bottom, and anxious to deepen their tilth, Do it by additions to, and by well working the surface, but do not go down unless you are prepared to spend more money than the land is worth to render it fertile.—WM. TAYLOR.

A ROCKERY FOR ALPINE PLANTS.

(Continued from page 404.)

HAVING warned those who are inexperienced in rockeries what not to plant, we will now tell them what to plant and how to plant them, first mentioning some of the materials desirable for the welfare of the plants. These are leaf soil well decayed and about a year old; good fibrous peat, for which leaf soil mixed with cocoa-nut fibre is the best substitute; clean coarse sand, the coarser the better, up to the size of Mustard seed; stone—limestone is best—broken to the size of Wheat; and lumps of rough hard stone from the size of a Filbert to that of an Orange. Fine seashore gravel the size of Wheat is also very good for a top-dressing in the hollows, but on the slopes it easily gets washed off. Old mortar is also useful.

The surface of our rockery is about 1000 square feet, and the average room required for an Alpine plant is not more than a foot, making allowance for alternations of spring, summer, and autumn plants. A thousand plants sounds a large number, but some favourites deserve to occupy several places, and you will soon find that you have too little room even for plants of high merit. Later on I shall give directions for raising Alpines from seed, in which I have had moderate success. It is not wise to be over-fastidious or sentimental about admitting none but Alpines to your rockery, at any rate until you have collected together your thousand Alpines. There are many choice and neat annuals, and half-hardy plants and shrubs, which do better on a rockery than anywhere else, and may fitly be admitted to keep the vacant places gay till the Alpines are ready, and being annual or tender they cannot refuse to give room. It is hardly possible to define an Alpine, and some true Alpines, as I said before, are the very reverse of desirable. Beware also of the fallacy of considering generic names any test of habit, or you may find a choice compartment encumbered by an *Astragalus* or an *Achillea* 6 feet high, or your rockery spoilt by a *Coronilla* which comes up everywhere but where it is wanted, and is inextricable. The limits proposed for this series of notes will not admit of anything like a complete catalogue of the Alpines and other plants which my rockeries contain, much less of all the species cultivated in England in this way; but I shall mention from fifty to a hundred, all of which grow here, and are therefore not particular about climate.

I will begin with Saxifrages, though the name has nothing to do with their habit of growth amongst rocks, many of them not being rock plants at all, but it refers to supposed medicinal properties in which the ancients believed. The genus is practically endless and the habit very various. The rapidly growing and spreading kinds, chiefly varieties of *S. cæspitosa* and *S. hypnoides*, luxuriate in leaf soil with a retentive subsoil, and spread their tufts of brilliant green over bare surfaces of rock; but you must strictly limit their bounds, and be inexorable about allowing them to pass them, or they will become a nuisance. I find it best to place such plants, since they spread downwards, in such a way as to allow them a free fall to the bottom of the rockery. All the Saxifrages with stiff crowns resembling small Artichokes or Pine Apple tops, are less encroaching, and may all be planted without fear of the consequences. They like crevices of rocks where they can grow resting against the sides; leaf mould or peat helps their roots, and loose stone and gravel over the surface of the soil is good for them. They are represented by *S. aizoon* and its varieties, *S. cotyledon* and its varieties, *S. longifolia*, and many others. Some of the choicest sorts, as *S. valdensis*, require packing round with stone to keep them from the soil, and all seem to like this attention. Another distinct class flowering in very early spring is represented by *S. oppositifolia*; it is a lovely little plant, liking bare rocks, of which the surface is constantly damp, as its native home is usually in the clouds. Others have leaves shaped like large stiff Lichens, the best of which is *S. wallacei*. A neat little annual, *S. cymbalaria*, must not be admitted too freely, from the trouble it gives in weeding out the seedlings. This list of Saxifrages will be largely added to as you learn the habits and merits of other species of the genus. One important point must not be omitted here, which refers not only to Saxifrages of the *S. coty-*

ledon and *S. longifolia* class, but to plants of similar growth in some other genera. The crown which produces flowers dies after flowering, after the manner of a biennial plant. If, therefore, you have a choice Saxifrage with a single crown, and it seems likely to flower, nip out the bud directly it appears, and it will then probably form more crowns, by which you can increase your stock.

Of the genus *Sempervivum* little need be said, not because it lacks merit or number, but because you may safely plant any of them you can get. They delight in the angular cavities amongst the rocks, and appear to grow almost without sending any roots into the soil. *S. tectorum* may be taken as the type of one class, of which *S. calcareum* and *S. Reginae Amalie* are also choice representatives. *S. arachnoideum* represents another form. The name should be spelt "arachnoides," but it is thankless work trying to reform the barbarisms of botanical names. It is a Greek word and means "spider-like," not that the plant is at all like a spider, but it looks as if the leaves were interwoven with fine silky webs of gossamer. *S. spinosum* is interesting, almost like a little sea urchin; and *S. triste* is of a distinct dark purple colour. I meant to speak also of the *Sedums*, but what I have to say about them would make this article too long.—C. WOLLEY DOD, *Edge Hall, Malpas.*

(To be continued.)

LIFTING FRUIT AND OTHER TREES.

WE have recently re-arranged many of our fruit trees, and so easily, and I can confidently assert so successfully, was it performed, that I have decided to briefly describe the operation. There is nothing novel about it, yet it may be of service to the inexperienced. Not only is it absolutely necessary to move some of the fruit trees, or shrubs, as the case may be, where crowded; but the operation if properly performed is often really conducive to fruitfulness in the case of the fruit trees, and to floriferousness and healthy growth in other instances. It is more especially in its infancy that a tree is disposed to form deep-running roots, and these, coming into contact with cold uncongenial soil, injuriously affect the top growth. Arrest the growth of these deep-running roots, and a healthier growth of surface roots will invariably result. I have noticed, especially in the case of Peach trees this autumn, those that are deep-rooting—that is to say, with a tendency to strike downwards and form but few fibres—are less healthy and profitable accordingly.

The transplanting in the nurseries does much to prevent deep rooting, but in our case I find it really necessary to lift and re-plant several Apricot and Peach trees received from the nurseries in the autumn of 1879. If this had been done in the case of a number of old trees in a Peach house and on the open walls we should not now be obliged to undermine, and to cut some and bring up other roots nearer the surface. It is useless to take the precaution of bringing up the roots nearer the surface and then to neglect to feed them in order to keep them there. Starve the roots, and down they will inevitably strike.

Shrubberies when first formed are generally planted thickly to insure immediate effect, and not a few are allowed to remain undisturbed till the most valuable specimens are spoilt. If properly planted the choicer specimens, and which are to be permanent, are thinly disposed according to their respective habits, the intervals being planted with commoner shrubs. These, as the first-mentioned extend, should either be cut away or transplanted elsewhere. To successfully transplant large specimens proper mechanical appliances and some skill in their use are requisite; but any small tree or shrub, say with about 2 cwt. of soil attached, may as a rule be easily shifted without any machinery. Where the soil is very light and gravelly it is almost impossible to secure a ball of soil without previous preparation, such as cutting a trench round or forking a quantity of leaf soil in to induce the formation of fibres; but in heavier loamy or clayey soils no previous preparation is necessary for small specimens.

Labourers as a rule are disposed to drag the trees up, but this will not do. What should be aimed at is a good-sized ball of soil in proportion to the size of tree, and as many roots all round as can be secured. What the size of the ball should be, or the distance from the stem to commence operations, it is useless for me to attempt to determine, as all depends upon the size of the tree and the nature of its roots. Disproportionately large balls are liable to break away in large pieces with the roots attached; therefore it is advisable to be satisfied with a moderate amount of soil with a certainty of preserving all the best roots. The simplest, if most laborious method, is to cut a trench round the tree 18 inches wide, having the tree at your side so as not to cut the roots, and throw out the soil to below the depth of the principal

roots. The soil to be then forked away from the carefully preserved roots and thrown out, working-in to as near the stem as it is decided to go. In order to lighten the ball it is advisable to lightly fork off any surface soil not occupied with the roots, and then to carefully tie back to the stem all the strongest. Next commence to carefully and gradually undermine the ball with forks till only just sufficient soil is left to support the weight. A broad strong board of sufficient length to admit of two or four men to lift with, as the case may be, is then to be placed under the side most undermined (if there is any difference), a fork or forks worked-in on the opposite side, and the ball carefully eased over so as to balance on the board. To attempt to lift on to a board generally ends in the breaking-up of the ball, and it is also very advisable to make the ball as flat and thin as possible, this favouring lifting and replanting. As boards are awkward to carry it is a good plan to have a strong hand-barrow conveniently near with which to carry the loaded board, taking care to lift the tree out of the hole carefully and to carry it steadily. On reaching the previously prepared position, the tree is then to be taken exactly where it is to stand slightly pitched on one side, the other side slightly raised with one or more forks, and after the board is withdrawn carefully let down. The roots are unloosened, having their broken ends and all bruised pieces cut out to facilitate healing, and then the soil is filled-in.

The fact of securing a good ball of soil, however, does not alone ensure the successful transplanting of a tree, it being of the utmost importance to have the new site properly prepared. In this matter, again, much must depend upon circumstances. To dig a hole only just large enough to hold the roots is decidedly false economy, especially where the surrounding soil has not been deeply stirred previously; yet how often do we see orchard and park trees planted in this manner. In such cases as these, supposing comparatively young trees to be planted, the holes ought at least to be 4 feet in diameter, and be still larger if larger trees are to be transplanted. The turf should be roughly pared off, next a moderate spit of soil and shovellings thrown out, and the subsoil broken up with a fork—not, however, to induce a downward root-action, but only to insure drainage. The turf may then be roughly chopped up and thrown in, as this on no account should be replaced over newly planted trees. On this may be spread a thin layer of the best soil, mixing with this if possible a small quantity of either light well-decayed manure or other light leaf soil, or perhaps better than either would be the ashes from a heap of burnt garden rubbish. The tree being then placed on this even bottom the lower roots should be evenly disposed and carefully covered with soil, the next tier then laid out, and so on if there are many till the whole are covered, all being nearly flat and having a little of the above-mentioned light material about them. When finished off the mounds should be rather above the level, as they will sink considerably, and this also predisposes to surface-rooting. Unless the ground has been recently trenched the holes for trees in the kitchen garden or pleasure grounds should be prepared much in the same manner, and for fruit trees if a little fresh turf can be added so much the better; but on no account manure the bottom spit, as the roots will go down fast enough without encouragement.

Newly and properly planted fruit trees invariably require staking. If they do not the chances are they are planted too deeply and will not thrive. What is technically termed the "collar" of a tree or shrub—that is to say, the starting point of the topmost roots—should only be slightly covered. Better the collar be above than 6 inches below the level of the surrounding soil. Newly-planted deciduous trees will not, as a rule, require any water at this time of year; but in the case of evergreens with matted roots it may be found advisable to soak the soil soon after planting, and again in the spring. The soil about the roots of either should on no account be allowed to become very dry, and should be frequently examined when dry or hot weather is experienced. To properly soak them form a basin with the loose soil, and fill this with water occasionally; afterwards mulch with short fresh manure or other material. It is a good practice to mulch newly-planted trees at this time of year, the mulching enclosing warmth and excluding frost.—W. IGGULDEN.

CYPRIPEDIUM INSIGNE.

MOST growers who possess a house affording a little more heat than a greenhouse grow a few plants of this old favourite, which yields abundance of flowers just at the right time, when flowers are scarce. It is very easily grown in fact, for nothing short of the worst ill-usage will prevent it growing and flowering. The consequence is that many are contented with very mediocre results, but it may be worth reminding some of your readers that some methods are better than others. Great numbers use loam wholly

or partly, and nearly all use peat. Having tried both systems, we now use only good sphagnum and charcoal. When the pots are full of roots we once a week immerse the pots in very weak liquid manure, generally sewage, but very weak guano is quite as good. Great luxuriance of growth and floriferousness are the results of this treatment. It is, we find, advisable not to disturb the roots too often—once in two years is quite often enough. They thrive all the better for being root-bound, if treated in the way indicated.—EDINA.

BOILERS v. WATER.

As caustic soda in the water used for hot-water pipes will not have a good effect on the valves, I would advise a simpler and cheaper remedy for the incrustation, and that is crude petroleum, or the commonest quality of paraffin that can be obtained. A quart of this in a steam boiler here containing about 250 gallons of water is found effectual in loosening old scale formed before its use, and in preventing such formation since then; so that, I think, one gallon in each of the 8-feet Cornish boilers when next emptied before passing in the fresh water so as to let it pass over the plates as the water rises, will be of great advantage and can do no injury to pipes, joints, or valves. This remedy will do for any water, whereas soda alone, or oak sawdust, starch (in the form of Potatoes, &c.), and other remedies are only suitable for certain different classes of water which cause furring when heated to boiling point.

I may add that I have just examined five boilers taken out in the same district of Surrey, and find that three of them which have been in fifteen to twenty years are not furred at all, while two others fed with the same kind of water that have been in use two years and a half and five years only are furred a little, the fact being that the two last have had the hardest work to do, and the water has been kept nearly if not quite boiling, while the others had very little to do—only one house each in fact. The three old boilers were conical, the two newer ones saddles; but the form alone will not account for the difference, though there was, no doubt, a less continuous circulation in the saddles than in the old conicals owing to the arrangement of outlets.—B. W. W.

I AM sure your readers must be much indebted to Mr. Shearer for his lucid explanation of boiler-incrustation on page 395, and having got through the long and hard names which must have nearly taken their breath away, and arriving at the soothing and softening powers of the "ordinary washing soda," felt that they would have been under a deeper debt of gratitude if he had informed them when, where, how often, and the kind of boiler he had periodically operated upon, and with the result. Perhaps he will kindly do so.

We had better not just now say much about Mr. Ollerhead's boiler with the patch upon its side. Let the invalid work through the winter and then—but we must not anticipate, but be—PRACTICAL, NOT THEORETICAL.

SOWING PEAS IN AUTUMN.

IT is an old-fashioned plan to sow Peas in autumn, and in many cases it has advantages, while in others it is a loss of seed and time; but this is generally more the fault of the operators than the system. It is seldom that autumn Peas are sown too early, but they are often sown too late, and this is the mistake which leads to the failures which often occur. We never sow Peas in autumn before the beginning of November or after the 10th or 12th of that month. In the north we have seen them sown from the middle to the end of October, but we have also seen many sown there early in November, and this time is very suitable in most parts.

It is important that the Peas germinate freely and be through the soil before midwinter. If there is a fortnight of good weather after sowing, it is surprising how quickly they will appear through the soil and assume a healthy green colour. After this they are safe for the winter, as a good covering of snow or many degrees of frost will not injure them then. On the other hand, if the soil is constantly cold and wet after sowing, growth is retarded and many of them perish. To insure a free healthy growth at first is the one object to keep in view, and those who wish to succeed with them should do all they can to secure this.

A good position should be selected for the seed. None is better than a south border with a sharp incline. There they have the benefit of the best weather, and damp does not injure them so much as in more unfavourable positions. Sowing along the base of walls might give them more shelter; but it is not only shelter they want, as too much of this at first generally spoils

them later on. This may often be seen by growths which have been sheltered so much as to make them fall over, and then their produce is never so fine; but the rows may be sheltered by one another, and with this object in view the whole of the autumn-sown Peas should be kept together.

When dwarf varieties are grown they may not be far apart in the rows, but taller kinds want more room, and such as William I. which grows about 6 feet high, 8 feet is not too much between the rows. When they are about this distance, and if they are staked just as they are coming through the soil, they shelter one another and grow up sturdily and healthy.

In the ordinary way of growing Peas the seed may be sown some inches apart in wide rows, but with autumn-sown Peas it is different, as they succeed best when close together. For this reason we now sow our Peas at this time in narrow drills about 4 inches wide and as much in depth. The soil is made rich with manure, and over the seed some rather light soil is placed, only a day when the soil is dry and in good working order is selected for sowing, and the whole are sown at once, as sowing in succession is not a good practice in autumn. As to the advantages of sowing Peas now there can be no doubt providing they can only have a favourable start, but much depends on this.—M. M.

THEORIES IN GRAPE CULTURE.

No sensible correspondent of the Journal will consider that Mr. Iggulden is bigoted in communicating his thoughts on restricted *versus* unrestricted growth in Vines on page 383. It is, perhaps, wise your correspondent thinks differently from some others on this subject. The great difference of opinion displayed on gardening subjects has undoubtedly sharpened our judgment and intellect, and but for the freedom of discussion gardening might not have been brought to the same standard of excellence as it is to-day. At the outset I may say my views on this subject are widely different from those of Mr. Iggulden, and in consequence I am tempted to defend a system I am practising. However, I am almost outside the range of those who grow Vines entirely on unrestricted principles. I have never yet seen a vinery without some form of restriction being employed. While I give the Vines under my care a large amount of freedom, allowing the shoots to extend liberally, they are restricted in a sense, but not to the extent that Mr. Iggulden says he would restrict young Vines if planting a house; therefore I must be classed with those who grow Vines on what may be called the unrestricted system.

I do not think the subject fairly approached if the remarks have to be confined to Vines two or three years old. Perhaps Mr. Iggulden intends to deal with older Vines in another paper; if so, I am content to confine my remarks for the present to young Vines. Mr. Iggulden tries to advance the unsoundness of an unrestricted system when he says "much may be said against it;" but, unfortunately, he has established nothing either against the system or in favour of the one he advocates. He seems to infer that those who allow liberty of growth have in view only the filling of the border with roots; but the primary object of my practice is to obtain, if possible, good well-finished Grapes. The roots I delight to see protruding through the border, which keeps the cultivator well informed that all is going right. While the roots are working vigorously and actively there is little fear of the crop of Grapes not finishing well on young Vines, provided ventilation and other conditions are favourable. If your correspondent will take a number of Vines in pots and restrict the growth by stopping the laterals a joint or two beyond the bunch, and keep other growths rubbed off as they appear, the fruit—if a moderate crop—will soon bring the Vines to a standstill, and the berries in the end will be small. Take other Vines, and if the laterals are stopped the same as the others, but unrestricted growths are allowed at the bottom and top, the roots will be more numerous and active, and better able to bring to perfection a greater weight of fruit. I am not referring to heavy cropping. This year I took from eleven Vines in pots sixty-six bunches of Grapes which averaged 1 lb. or more in weight each. They finished well and the berries were a good size. The top growth was allowed to extend 6 feet and was then stopped, and the laterals were removed as usual. The growth at the top was not interfered with again until after the Grapes were ripe. The wood is strong, and from all appearance the Vines will produce good fruit again next year. If they had been closely pinched the one crop would have exhausted them.

Now to Vines planted out. I stop the young Vines when about 9 inches high until they make roots, and again when 3 or 4 feet long. They are then allowed to grow as much and as fast as they can, even if they resemble a thicket at the top of the house,

the laterals only being pinched up to the place where the leader was stopped the second time. Vines grown under this condition produce twice the quantity of roots of any grown on the restricted principle. If the whole of this unlimited growth were cut off at a stroke I do not doubt that many of the roots would perish, but if gradually removed from time to time as the wood matures the roots will not perish during the winter. They have just the same chance of ripening to remain in good condition throughout the resting period as those grown on a more restricted system. Practice and observation have convinced me they do not perish, and if Mr. Iggulden considers they do it is a matter upon which he must advance proof.

Hitherto I have found Vines treated as I have described start vigorously in the spring and show abundance of fruit, as many as three bunches on nearly every lateral. I removed early last spring over one hundred bunches before the flowers opened from twelve Vines that had been planted three years last July, and raised from eyes the same season.

The statement of Mr. Iggulden is the first I have seen where it was considered possible to have too many roots in a Vine border. My object has always been to have as many roots as possible and to keep them in good condition. It is an impossibility for Vines with limited root-action to carry a crop of fruit as heavy and finish it as well as Vines with abundance of roots. Restricted growth in Vines is often carried too far, and the crop which may only be apparently light is really too heavy, as may be seen by the crop failing to finish satisfactorily. This is entirely the result of deficient root-action, and a sufficiency of roots can only be obtained by allowing the Vines greater freedom of growth.

If Vines are grown on the restricted principle, and if there are only sufficient roots to maintain the foliage, how will the Vines perfect a crop of fruit? Mr. Iggulden argues further that the roots of unrestricted Vines are of the grossest kind; they are exactly the same as those produced by restricted Vines, and if the border is made gradually by increasing its width not more than 2 to 2½ feet at a time, gross roots can be prevented and the border filled with feeding fibres. If the roots have free liberty when grown on either system they soon run through the border, and the greater portion of them are fibreless.

Another point. Vines are not so liable to throw off their main leaves when the laterals are allowed to extend freely as when they are closely pinched and confined to a single cane. The sap in the first case has abundance of sources in which to exhaust itself, but when the laterals are restricted and the channels for the supply of sap insufficient the stem increases rapidly, and the leaves are forced off. Vines with abundance of lateral development are never so pithy as when all the strength of the Vine is concentrated in one stem.

If science teaches "the roots extend themselves in all directions beneath the soil in search of food, &c.," it also teaches there is nothing lost in Nature, and the growth burned is not lost, but can be returned to the border for food again for the Vines.—W. BARDNEY.

In all that Mr. Iggulden advances under the above heading, at page 384, he never once shows that he has the slightest glimmering of the reason why most growers encourage as much growth in young and old Vines as possible. Most intelligent growers understand that it is the leaves that manufacture the fruit and wood, and for this reason they encourage as many as can find room to do their work properly. Nor is this so much for the mere purpose of filling borders with roots, but rather that the Vines may bear large crops without exhaustion, and later lay up an abundant store in the Vines for a strong start and an abundant fruitfulness in after years.

I think I am right in saying that gardeners look on their Vine stems as so many reservoirs in which to store in autumn as much organised material as will enable them to produce the best results possible the following year. Mr. Iggulden thinks, at least he says, that great masses of roots are useless in spring because they do not move when the buds move. No, they do not, and neither do they when the roots are few. And why should they? What would it benefit a Vine before it has its leaves mature enough to elaborate sap, to be filled with watery crude sap fresh from the border? Until Vines have made leaves working roots are not wanted; they must both work together. In the case of young Vines which are cut hard back, whence are they to find material to furnish young stems and working leaves if there are no stores in the underground stems generally called roots?

In great numbers of instances—in Orchids, Potatoes, Lilies—Nature makes special contrivances for thus storing material to be ready to hand just when wanted; indeed, in Vines she makes just the same provision, and, whether we understand exactly the

reason why, it is just for this that thorough ripening and ample nourishment in autumn is so beneficial: and just for this reason that those who are careless then never secure first-class results. The idea that Vines when extending their shoots in spring need support leads many to apply liquid manure to their borders when neither leaves nor roots are working! They do need support, and should have it from the top stems and root stems, which should be primed with it in autumn, and if it is not then available there it is not available anywhere.

Mr. Iggulden quotes "science" to support his theory. Science is very helpful, but those who think to command the helping hand of science must needs dip deeply. Not only have those who encourage the manufacture and storage of sap by extended growth ample working power of foliage, ample room to work in, ample feeding, ample supplies of heat and air and light—"results apparently justifying" such course; but when Mr. Iggulden dips a little deeper he will find they have science too on their side! - SINGLE-HANDED.

RESULTS OF THE POTATO TRIALS AT CHISWICK.

A MEETING of the Fruit and Vegetable Committee was held at Chiswick on the 3rd inst., Mr. John E. Lane in the chair. The collection of Potatoes grown in the gardens was again examined. Several sorts were selected as good cropping, very handsome, and distinct varieties, and on being cooked the following awards were made:—

FIRST-CLASS CERTIFICATES.

Fortyfold White (Farquhar)	Large round white.
Vermont Champion (Bliss)	Large round white.
Queen of the Valley (Bliss-Hooper)	Large and oblong pale pink.
Adirondack (Bliss-Hooper)	Medium round white tinged with pink.
Brownell's No. 11 (Bliss)	Large roundish white.
Victoria Kidney (Edwards)	Large flat white.
Rand's No. 30 (Bliss)	Large oblong white.
Rand's No. 12 (Bliss)	Large long flat white.

SECOND-CLASS CERTIFICATES.

Criterion (Ross)	Round white.
Sir Walter Raleigh (Ross)	Large round white.
Trophy (Bliss)	Large kidney-shaped red.
Vicar of Laleham (Dean)	Large round purple.
White Elephant (Daniels)	Large long-flaked.
Victoria alba (Donaldson)	Large round white, purple eye.
St. Patrick (Daniels)	Large long white.

ORCHIDS AT KEW.

THERE are now in flower in the Kew collection several good Orchids that are worth noting—in fact, two or three varieties are such as are seen in few collections. It is rarely we visit Kew without seeing some interesting plants in flower in the Orchid house, for the collection comprises nearly all kinds, and there is always some little novelty to please the botanist as well as the horticulturist. Amongst the most noteworthy may be mentioned the following:—

A handsome variety of *Lælia pumila*, the flowers of which are fully 4 inches across, of a bright rosy purple. The peculiar tube-shaped labellum is of the darkest colour, approaching black. It is, as the name implies, a dwarf-growing species, and well adapted for growing in baskets or on blocks. It seems to be quite at home growing in a basket suspended from the roof. It is evidently a close relation to *L. Dayana*, which is also in flower, but will not bear comparison with *L. pumila*. They both delight in a cool temperature, such as the *Odontoglossum* house, and always require to be kept moist at the roots. The several varieties of *L. Perrinii* are very showy just now. One variety, which is pure white excepting a blotch of dark purple on the tip of the labellum, is extremely handsome.

Cattleya labiata, named "old variety," is a great acquisition to any collection. The plant, which is rather a small one, is producing three flowers on one spike; the colours are almost indescribable, for there are so many. I think this is rather a scarce variety, and will always be valuable.

Pleione Wallichiana is very pretty, and a fitting associate to *Oncidium excavatum*. This is a good old Orchid, but rather neglected by many growers. It produces long-branched spikes of bright yellow flowers barred with light brown.

Oncidium ornithorhynchum is always welcome on account of its deliciously fragrant flowers; they are certainly not of the brightest colour, but when a plant has several panicles fully expanded it is by no means to be despised.

Odontoglossum cariniferum is rather a peculiar flower. The sepals are a dull brown, the heart-shaped labellum being pure white.

Burlingtonia candida is a little gem, and is flowering freely in

a basket suspended from the roof. The flowers are snowy white, except a blotch of sulphur yellow on the labellum. The racemes are about 6 or 8 inches long, and droop gracefully over the sides of the baskets. *Zygopetalum Mackayi* completes this short list, and is so well known that it requires no description.—W. K.

LOBELIA SYPHILITICA.

THIS border plant (a spray of which is figured) is a native of the Northern States of North America. All the herbaceous Lobelias like moist retentive soils, and may be treated successfully as bog plants, being liable to suffer from parching east winds in spring and from drought in summer; but *L. syphilitica* may be grown in any good garden soil, being quite hardy and truly perennial, though it is likely to disappear in some soils, probably from the causes mentioned above. It is a handsome plant, producing



Fig. 69.—*Lobelia syphilitica*.

throughout the summer flower spikes from 2 to 3 feet high bearing abundance of close-set flowers. The normal colour is clear light blue with black spots in the throat surrounded by lighter shades of blue, but varieties in colour are common when it is raised from seed, some of them being pure white. I have heard also of others with rose-coloured flowers, but have not any of these in my collection. If seed is sown early some of the plants will flower late the first year, and all will make good plants, bearing several spikes of flower the second year; and as the vigour of growth enabling the plants to survive unfavourable conditions is far greater in seedlings than in divided plants, this *Lobelia* may successfully be treated as a biennial.

I can also recommend for similar treatment the herbaceous Lobelias of the *cardinalis* class, which come to us from North America under several specific names, including *L. cardinalis*, *L. fulgens*, *L. splendens*, *L. ignea*. If these are really distinct they are very similar and often confused in collections. In their native country they grow in bogs, and are said to be biennial and during their first winter capable of resisting any degree

of frost; but in English gardens they are treated as perennials, and in most parts of the country have to be protected in winter, though they appear to be hardy in some very cold and exposed places, and it is difficult to say what conditions ensure their hardiness. The natural colour of the leaves of *L. cardinalis* is green, but the garden varieties generally have purple leaves. The flowers are for the most part of an intense scarlet, but sometimes vary to dark crimson.

A very handsome class of hybrids between *L. syphilitica* and *L. cardinalis* has been raised, some of them having been in cultivation for many years, two especially, named *L. Villarsii* and *L. violacea*, possessing great merit as ornamental plants, and having flowers of dark rich violet colour. Many of these hybrids are perennial and perfectly hardy, but they seem to vary much in this respect.

I plant the seedlings out as soon as they are large enough in a bed of good rich soil, where many of them flower late the first year. Those which survive the winter I plant out in spring in the mixed borders, to the gaiety of which they form an important contribution in late autumn. Seed of all these *Lobelias* may be obtained cheaply and abundantly from that invaluable treasury of choice seeds, the shop of Mr. W. Thompson of Ipswich.—C. WOLLEY DOD, *Edge Hall, Malpas*.

SHORT NOTES ON GOOD GARDENS.

As the gardens of Cardiff Castle were referred to a few weeks ago (page 288), and those at St. Fagan's Castle were described on page 264, vol. i., new series, it is not now necessary to say more than they merit all that has been published about them, the cultivation being excellent at both places. Less known are the two following establishments.

TREDEGAR PARK.

Newport, Monmouthshire, is the station for this celebrated place. From Newport the house is some three miles or more, but an extensive finely wooded park is entered before going thus far. Lord Tredegar is well known as an ardent agriculturist and considerate landlord, and many proofs of both may be seen on the estate. Horticulture, too, is well represented, and much good practice may be seen. The glass houses are not erected in long imposing ranges, but they are in two or three different gardens. In one there is a fine span-roofed stove, which contains many well-grown specimen plants. The Palms and Crotons are fine exhibition plants, and besides them the side shelves are well filled with small healthy plants for room and table decoration. Not far from this stove there are two vineries of large size, planted chiefly with Black Hamburgh and Muscat of Alexandria. The Hamburghs were very fine, and the Muscats were especially so, as might be expected, as Mr. Raffill the gardener secured the Veitch Memorial Medal and prize for Muscats at the Manchester International Exhibition. The bunches and berries were large and very regular, and the colour was more golden than is generally seen on Muscats. The vineries are not entirely devoted to Grapes, but contain many plants and Figs.

The next important house is a long curved span-roofed Peach house. The trees have only been planted about twelve months, and their growth is most satisfactory. We noticed good substantial loam formed the basis of the border, and we are informed that abundance of water is given to the roots during the time the trees are growing. Besides the fruit trees this house also contained many softwooded plants all in good health. Pines are grown there, and the largest house was full of fine successional plants, and many in fruit. The kitchen garden is about eight acres in extent, and every inch of it was filled with well-grown crops. Wall trees and espalier trees were more numerous than in any garden we have visited lately, and most of them were in excellent health and bearing heavily.

The flower garden is not in a great mass as we often see, but is much divided into old-fashioned borders, which were effectively planted with the ordinary bedding plants, and many herbaceous plants and annuals were mixed with them. In the pleasure grounds there were many unusually fine specimens of Conifers and deciduous trees, amongst which some very large Tulip Trees were conspicuous. In this short note we feel that there is much in this well-managed and liberally supported garden of great interest which must be omitted at present; but all who may visit it will find something to please at every turn.

BRYN GLAS.

Though not, perhaps, very familiar to a number of readers this is a place of no small importance. It is situated on the opposite side of Newport from Tredegar, about a mile and a half from the town, and from the elevation on which it stands one of

the finest and most extensive views in Monmouthshire may be obtained. The pleasure grounds are six acres in extent, and the kitchen garden about two acres. There is a long conservatory attached to the mansion, and there are many small convenient plant and fruit houses in other parts of the garden, all bearing evidence to the interest the respected proprietor, T. Cordes, Esq., takes in horticulture, and in which he is so ably assisted by his gardener, Mr. Wattie. Those who know this place from report regard it as a good plant-growing establishment, but other branches of gardening are equally attended to. Plants are certainly well grown, as not long ago some of the specimens were placed before those from Messrs. Cypher and Tudgey at an important show. The Crotons are of great size and beautifully coloured. The Dipladenias are well grown, and they are regarded as the most useful of stove plants, as they bloom for such a length of time. Mr. Wattie has succeeded in raising a seedling of much promise; it is somewhat after the style of *D. amabilis*, but larger in the bloom and more pleasing in colour than that variety. The blooms are whitish, beautifully suffused with crimson.

Stephanotis is largely grown both planted out and in large pots, and in both cases it is in fine health, and blooms almost all the year round. *Eucharis amazonica* is another plant grown in quantity and well. *Salvia patens* is grown in pots, and some fine clumps of it in the conservatory were in full bloom, and we thought it most lovely. In future we shall grow some in this way.

Peaches under glass were all gathered, and the trees gave grand promise of fine crops in future. Grapes, especially Black Alicantes, were extremely fine, and Vines in pots to fruit early were strong and well grown. Pines, particularly the successional plants, were healthy; late Melons were a fine crop both in number and size; Cucumbers for autumn supply were answering their purpose well; Strawberries for spring fruiting were the finest we have seen this season; in fact, better could not be desired. The kitchen garden was well filled with useful crops; and here, again, espalier fruits were so fine that we are much inclined to think that this is a good system of growing fruit.

Roses are extensively grown, and a small glass house in the pleasure grounds has been erected specially to secure late and early blooms. In this house there is a very fine *Maréchal Niel*. About the lawns there are some grand young plants of the choicest kinds of *Rhododendrons*; and the flower garden, in which beds grouped together, is more tastefully planted than any we ever saw out of London. All departments indicate the care of a good gardener.—TRAVELLER.

THE USE OF FIRE HEAT FOR GRAPES.

MR. TAYLOR's temperatures for Grapes, as quoted by "CORRESPONDENT" in a recent issue (page 375), are so much above Mr. Simpson's that I fail to see how they can be taken as evidence in support of the "cool system," as it would take considerable fire heat to keep them up to that figure. I venture to say not many good cultivators would object to Mr. Taylor's temperatures—in fact, I think they are more generally followed than higher or lower are; but I do not think many would like to adopt the temperatures so persistently advocated by Mr. Simpson. These may do for Grapes that can be grown outside, but not for the production of first-class examples of Muscats and late-keeping kinds. We do not want "fair" or "tolerable" Grapes, loose in bunch, wanting in colour and flavour. We want them well coloured, highly finished, and of the very best flavour—Grapes which we can place on our employers' tables or exhibition boards without a blemish, and with a feeling that whoever looked at or tasted them their verdict would be "First-rate." Until advocates of the "cool system" can show such Grapes, produced from year to year from the same Vines, they may write about it in vain.

The economy of the system has yet to be proved, for against the fuel said to be saved must be placed want of finish, size, and flavour in the Grapes, and unripe wood. There may be exceptions to this in favourable localities and good positions, but generally such would be the result of the fuel-saving, which cannot be called true economy. The use of fire heat for Grapes can, I think, be summed up in a few words—it enables us to grow the best kinds to a higher state of perfection than we could do without it, and to cope with dull and sunless seasons; it also enables us to ripen the wood in good time for the Vines to have a season of rest before starting them again.—A. BARKER, *Hindlip*.

LIQUID MANURE FOR FERNS.—I can fully corroborate what Mr. Gilbert says on this subject on page 352. Most of our plants for cutting from are in pots absurdly small compared with the size of the plants; but as we prefer to keep the red tiles in our houses as

inconspicuous as possible, we think it better to have them thus. Vigorous luxuriance we maintain by treating the plants to plenty of water—no fear of overdoing it with pots so full of roots as ours are—and liquid manure from the sewer twice a week. It is quite clear, and by no means strong, but is all the better for that. Some time ago, when visiting some gardens in Forfarshire, we called on an old friend, Mr. W. Alison, at Seaview, Monifieth, who is well known over a wide district as one of the best of gardeners, and hardly equalled as a Fern-grower. The Ferns were grand examples; so we, as is our manner, asked the secret. The answer was, "There is no secret beyond the fact that they are liberally supplied with very weak liquid manure." We came home, commenced the practice, and advise all your readers to "go and do likewise."—EDINA.

THE POTATO CROP IN IRELAND—THE CHAMPION.

WE have been taking up a considerable square of Potatoes, and have been noting the merits of the varieties, the produce, the quality, and the relative yield as compared with other years, and have been trying to form a general opinion from information procured from all sources. I had been through much of Ireland and England in August, and the then promise indicated by the Potato crop has been amply sustained, with the exception of particular varieties to be immediately referred to. While as anxious as any (and this is the view of all intelligent gardeners and farmers of my acquaintance), that experiments should be made with new varieties so as to obtain established kinds of undoubted merit, I think the system pursued by Mr. Taylor of Longleat, to grow two or three reliable kinds for general purposes, a good one. I had at least twenty varieties in a small experimental plot, and had planted six varieties the previous autumn, as mentioned then in the *Journal*, and have come to the following conclusions, and it is nearly twenty years since I commenced experiments as a pupil at the Government Farming Institute at Glasnevin near Dublin.

I never saw the general crop of Potatoes turn out so free from disease, and the oldest inhabitant has to go back to the time before the blight appeared, I believe in 1847, to find Potatoes selling in the public markets in Ireland at 4d. per stone as here, and less in other towns at present. Small Potatoes, such as are frequently employed for seed, from 1 to 1½ inch in diameter, I saw sold at 2d. per stone, and so on. Now this means plenty for the humbler classes all over Ireland, and, as at Longleat, the general crop is the Champion. Not one in every thousand of this variety seems injured under ordinary culture in this country. This would be of little importance if the quality was inferior—say as bad as American Reds, which seems suitable for cattle-feeding. I believe the great test of a Potato is quality, and it is to be hoped that characteristic will be substituted for beauty of appearance at Potato exhibitions in future, while "keeping" properties should, perhaps, come next. This is one of the points in which the Champion has caused some disappointment. I found it almost useless after April, owing to a tendency to become spotted darkly all over when cooked, though to all outward appearance quite sound. Though the Champion is considered and grown generally as a late-crop Potato, in this locality White Rock and Scotch Down must be grown as well to carry growers over the intermediate months of May and June.

In this district the usual early and second early varieties are Early Rose, Ashleaf, and more generally a variety not common in England, called the Flounder. This last is large, flat, and rather soft, but comes in early and yields heavily. It is, however, the worst keeper I know. We have shovelled quantities out as manure, and a gardening friend showed me portion of a pit, a few days since, he intended for seed used similarly. The Magnum Bonum as a field crop in this locality is splendid in size and yield, but I am bound to say for quality or table use it is by no means equal to the Champion. Both are the freest from disease, though in several districts of Ireland a bluish-tinted late kind called the Skerry Blue has maintained that quality for twenty years. The quality for table use is, however, inferior. I agree with Mr. Biddell (page 381) that the Champion, at least, requires a greater distance asunder owing to its enormous leaf and stem-growth than the other varieties. If not, I am afraid at no distant day degeneracy from imperfect ripening will be inevitable, and this would be in Ireland a national misfortune.—W. J. M., *Clonmel*.

SHORTENING ROSE SHOOTS.—We do not know whether anyone has ever recommended, in the *Journal of Horticulture*, the shortening-back in autumn of strong shoots of Roses. Rose-growers invariably prune in spring, and in a great majority of cases that is the only proper time to perform the operation. Still much mischief ensues, especially in exposed gardens, as ours is, to Roses which are left unshortened and unstaked till spring time. Long strong shoots amply furnished with strong foliage turn and twist with every blast of

wind till many are ruined. Staking secures shoots but takes time (to say nothing of the stakes required), which is not always available when other duties press. Shortening back half way is quite as effective and is easily done. We invariably practise this, and the sight of numbers of spoilt bushes in a neighbour's garden—spoilt by a furious north-easter just three days after ours were safely shortened—reminds us that the practice may be worth mentioning, although it may seem trifling to those who have not lost fine strong shoots of Roses by autumn gales.—N. B.

BEGONIA SEMPERFLORENS GRANDIFLORA.

SEEDS of this were kindly sent me in the spring by Mr. Iggulden. They were sown in a pot filled with turfy loam and a little well-reduced leaf soil, the surface being made smooth, the seed distributed regularly, and covered with a light sprinkling of silver sand. The pot was placed in a hotbed and shaded to prevent the surface of the soil becoming dry until the seeds had germinated, care being taken afterwards to keep the soil constantly moist, as drought is fatal in a few hours to the seedlings. The young plants appeared in a few days, and when large enough to handle were potted singly in thumbs. They were returned to the hotbed, and when the thumb pots were filled with roots the plants were transferred to 4-inch pots; at the same time the remainder of the plants from the seed pot were lifted and placed in the first instance (as they were much larger than those first potted) in 4-inch pots. After potting they were transferred to another hotbed, and from the 4-inch pots they were shifted into 6-inch, and placed in a frame, which, though used for Melons, had little if any heat beyond that derived from the sun.

Although the seed was sown early in April (the 6th) the plants were showing flower by the middle of July, and by the early part of August they were sufficiently in flower to admit of their being employed for decorative purposes. About a hundred of the plants in this condition were placed in a greenhouse, and in association with the bright-flowered tuberous varieties the effect was highly pleasing. There they remained until the close of September, when they were placed in a cool stove temperature, and they commenced flowering again most freely, and are now (Nov. 1st) flowering better than they were in the greenhouse; indeed some that had shoots with their flowers taken off some 6 inches long have grown again, and are likely to continue in flower through the winter. It is a plant of the easiest culture, and in a few months from sowing the seed plants can be obtained of considerable value for decorative purposes in the greenhouse or conservatory during late summer. It is also valuable as yielding a supply of flowers for cutting in late summer and autumn (and no doubt in winter), as sprays can be taken with a certainty that a successional supply will be forthcoming in a short time. The sprays have a very good effect from the deep shining green colour of the foliage. The plant attains to a height of 15 to 18 inches, commencing to flower at 6 to 9 inches, branching well from the base and upwards, forming compact plants with flowers borne profusely from every growth. The foliage is bold, the trusses of bloom large, erect; flowers pure white, twice the size of the old *B. semperflorens*. This new variety is a valuable acquisition, and is certain to become highly popular.

The plant and flowers contrast admirably with those of *Begonia insignis*, *B. Ingrami*, *B. ascotensis*, *B. fuchsoides*, *B. Saundersi*, *B. hybrida multiflora*, and *B. weltoniensis*, and cuttings of these inserted at the same time as the seed of *B. semperflorens grandiflora* was sown are fine plants in flower, and will continue flowering in a house with a stove or intermediate temperature through the winter. *B. parviflora* with its neat foliage and numerous small white flowers is also very useful. There need be no scarcity of flowers at the dull season with so many easily grown plants as these at command.—G. ABBEY.

LIQUID MANURE FOR ORCHIDS.

LIQUID manure is not generally given to Orchids, but it is a question if great numbers would not be benefited if it were. Peat is too much used under the mistaken impression that it yields something beneficial to the plants. We do not say that peat should never be used in Orchid culture, for we know that great numbers require some such material; but we feel assured, from experience, that great numbers would be much better without. All Orchid growers admit that decaying peat is an evil; but few seem to understand that only decaying material can yield plant-food. A friend, who has on more than one occasion brought us plants from the East Indies and elsewhere, tells us that all the good roots he has seen on Orchid plants in the wild state were either attached to fresh hard bark, or growing among living vegetation, or dangling in the air. He also assures us that many, or

most of the kinds which grow on trees, are fed with liquid manure naturally. He has almost invariably found the branches of the trees bespattered, often plentifully, with the excreta of both birds and mammals. This is washed by rain within reach of the roots of the Orchids, and we cannot doubt that they are thereby benefited.

Is not this a hint worth thinking about? Orchids, however, are not to be tampered with, but we are sure that weak liquid manure applied to those plants which have filled their pots or baskets completely with healthy roots helps them greatly, as in the case of *Cypripedium insigne* and many others.—A. H.



AT a General Meeting of the ROYAL HORTICULTURAL SOCIETY, held on Tuesday last, Col. R. Trevor Clarke in the chair, the following candidates were duly elected Fellows of the Society—viz., Theodore George Ensoll Herman, J. R. Gaskoin, Mrs. Billingsby Parry, Sir Rawson W. Rawson, K.C.M.G., C.B.

— WE learn that THE PELARGONIUM SOCIETY will hold its eighth annual Exhibition in the gardens of the Royal Horticultural Society, South Kensington, on Tuesday, the 27th of June, 1882.

— WE are informed that a collection of Mr. King's beautiful NEW COLEUSES, many of which have been certificated during the year, have passed in the hands of Messrs. James Carter & Co. for distribution. The bold foliage of these Coleuses and their brilliant colours cannot fail to arrest the attention of all who see them when the plants are produced in their best condition.

— THE *Daily News* correspondent telegraphs:—"A novel FEATURE OF THE IMPORTS TO AMERICA FROM ENGLAND is the arrival of Beans, Cabbages, and Potatoes. Forty barrels of Champion and other varieties of Potatoes grown in the north of Ireland were offered for sale on the 2nd inst. In size and quality they were inferior to American Potatoes. One firm imported 2400 bushels of tubers, grown in the vicinity of Liverpool, and has 4500 more on their way here. These can be sold here from 2 to 2½ dols. per barrel, whereas native Potatoes bring 3 and 3½ dols. Liverpool varieties compare favourably with the native. Owing to the drought both the Potato and Cabbage crops are short this year."

— WE are requested to state that it is proposed to close the list of subscribers to the fund now being raised to make a PRESENTATION TO MR. E. S. DODWELL at the end of the present month. The object of the presentation, it may here be stated, is to show the sympathy of his brother florists with Mr. Dodwell in his debilitated state of health, which has made it necessary for him to remove from the suburbs of London to a purer country air; and at the same time to cheer his declining years by an expression of their appreciation of the services rendered by him during an active life to the cause of floriculture—the advancement of the Carnation and Picotee in particular—including his successful efforts to bring about in the southern portion of the kingdom the revival of a taste for floriculture, in some at least of its phases—e.g., the Auricula and Carnation Societies. Those friends who have not yet subscribed, and who intend to do so, are reminded that they should at once send in their contributions either to the Hon. Treasurer, Mr. C. Turner, Royal Nurseries, Slough, or to the Hon. Secretary, Mr. T. Moore, Botanic Garden, Chelsea, London, S.W.

— THERE is now what may fairly be described as the FINEST

DISPLAY OF NEPENTHES IN EUROPE in Messrs. Veitch's nursery at Chelsea. *N. sanguinea* is magnificent, but it is surpassed in colour by the new and yet small *N. madagascarensis*. *N. Rajah* is still small, but growing in the most satisfactory manner; and in striking contrast is the bold and vigorous *N. bicalcarata*, the pitchers of which now hold a pint of water. The more established forms have a profusion of beautiful pitchers, thousands of which are hanging from the roof of one house, producing a remarkable effect. The wall at the end of the house is being covered with the new *Pothos eelatocaulis*, which somewhat resembles a *Maregravia*. It is associated with *Ficus minima*; the contrast is striking, and the effect quite unique. In an adjoining pit are numbers of fine plants in the best health and colour of the curious *Cephalotus foliolularis*, some of them with from one to two hundred pitchers clustered together under a large bellglass. Many other singular and valuable plants in the same pit are also worthy of inspection.

— IN another house the most striking plant is *ANTHURIUM WARROQUEANUM*. The finest leaf the plant has yet produced is 3 feet 6 inches long by 2 feet wide in the broadest part. It is an excellent colour, the ivory-like midribs being very clear. The leaf resembles a richly wrought shield, and its effect is extremely imposing.

— IN the ORCHID HOUSES the miniature *Oncidium ornithorhynchum* and *O. cheiroporum* render one of the structures pleasant by their fragrance; in another the strikingly beautiful *Cypripedium Spicerianum* is in superb condition, and near it is the small but rich *Phalenopsis violacea*. In another house some new *Laelias* are flowering, and the grand old *Cattleya labiata* is gorgeous. *Miltonia candida* is also flowering freely, and is very distinct and attractive.

— WE understand that the fixtures of the NATIONAL ROSE SOCIETY for next year are for the metropolitan show, July 4th, at South Kensington, and for the provincial show, June 28th, at Bath. Negotiations are in progress for a third show later in July to meet the northern and midland growers.

— "WEALD OF KENT" would feel greatly obliged to know the cause of CIDER BECOMING OILY, and the best method of clearing it previous to bottling. Some was made in November, 1879, racked in about twelve days after making, and then 1 lb. of raw sugar was added to each gallon. It was bottled in February, 1880, and kept in a cellar never over 60°. It did not appear oily when bottled, but soon became a little so, and so continues, but is well up like champagne. Some other had half the quantity of sugar with the same effect, but of course not so sweet.

— "The SHOE-BLACK PLANT," says the *American Cultivator*, is the popular name of *HIBISCUS ROSA-SINENSIS* in New South Wales. Its showy scarlet flowers contain a mucilaginous juice which gives a glossy finish to leather. The plant grows freely in almost any kind of soil, and the flowers are much used when dry as a substitute for shoe-blackening. They may be used with or without a brush."

— PART 21 of LETTS' "POPULAR ATLAS," contains five maps representing portions of France, Germany, Spain, and Portugal on a large scale. The clearness and accuracy of the delineation continue as satisfactory as in the earlier parts to which we have frequently referred.

— THE utility and beauty of SINGLE DAHLIAS are generally recognised, and a supply of their flowers is always acceptable. Mr. Moorman, gardener to Miss Christy, Coombe Bank, Kingston, practises a simple but effectual mode of prolonging this supply. Before the frosts become sharp enough to do much damage a number of plants were lifted, potted, and placed in a vinery,

being liberally supplied with water to assist them in overcoming the effects of removal. They are now flowering as freely as could be desired, and are likely to continue so for several weeks.

— "G. G." desires to thank Mr. Pettigrew for his ADVICE TO YOUNG GARDENERS that he gave a few weeks ago, and says that it is because some young men have faults and drawbacks that the experience and counsel of others prove so advantageous.

— "J. H." writes as follows relating to PEAS FOR EARLY CROPPING—"On the 29th November last I obtained four quarts of William I., also some Early Prolific, and sowed them on an early border near Peterborough. William I. came up strong and endured the winter best; and although I was able to gather Peas from plants of both varieties on May 29th, William I. produced fully double the quantity of fine green colour Peas, and of excellent flavour. This Pea is undoubtedly a very great acquisition for early crops."

— THE CRYSTAL PALACE SCHOOL OF GARDENING.—Mr. F. A. Fawkes, author of "Horticultural Buildings," has been appointed to give a course of three lectures to the students and the public at the Crystal Palace at 5 P.M., on November 16th, 23rd, and 30th, upon the construction, fitting, and heating of greenhouses, conservatories, and other horticultural structures. The lectures will be illustrated by numerous specially prepared diagrams.

— AT the ordinary meeting of the METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 16th inst., at 7 P.M., the following papers will be read:—"On the Gale which Passed across the British Isles, October 13th-14th, 1881," by G. J. Symons, F.R.S., President. "On the Structural Damage Caused by the Gale as Indicative of Wind Force," by J. Wallace Peggs, Assoc.M.Inst.C.E., F.M.S. "On the Meteorology of Mozufferpore, Tirhoot, 1880," by C. N. Pearson, F.M.S.

— MR. F. WALKER has sent us samples of GRAPES GROWN WITHOUT FIRE HEAT. The Bowood Muscat is of good flavour and well finished. Lady Downe's is well coloured but not quite ripe, and Mrs. Pinee is above the average as to colour and is of very good quality; they are very creditable yet not large examples. It must be added that they were grown in the Isle of Wight.

— "W. J. M., Clonmel," sends the following remarks upon SCOTCH CHAMPION POTATO—"Since sending you some observations on this subject, I have read the very instructive notes of Mr. Laxton on the Potato trials at his Experimental Gardens at Girtford, page 394, and so far as my experience, and that of all the gardeners I have spoken to goes, the Champion can in no sense be described as "waxy," quite the reverse, a term used by Mr. Laxton when comparing it with Suttons' Reading Hero. In this country the Champion is so dry and floury with ordinary treatment as to be almost impossible to cook without bursting. I heard one gardener describe it as "gritty"—in the same sense as Pears are so described—certain they are anything but waxy."

— As regards the neighbourhood of London, it appears probable that the CHRYSANTHEMUM SHOWS will not be quite up to the average, for many of the chief growers are complaining that the condition of their plants is unsatisfactory in an exhibition point of view. Indeed one of the most successful exhibitors of the last few years states that he is quite unable to compete this season. Fortunately, however, there is good promise in several of the leading collections, and visitors to the principal shows will undoubtedly find something noteworthy. Amongst the finest plants and blooms we have seen this year are those grown by Mr. G. Harding, gardener to T. Galpin, Esq., Bristol House, Putney

Heath; and although Mr. Harding considers they are much below his usual quality, he will prove a formidable competitor wherever he exhibits. Mr. J. Stevens, St. John's Nursery, Putney, has also a large and handsome collection, some of the plants and blooms being likely to obtain prominent positions at the metropolitan shows. In both establishments the blooms are of good substance, the colours bright and clear, and the plants vigorous.

— REFERRING to the case of GRAPE-STEALING, recently noticed in these pages, a correspondent remarks:—"Although the prisoners Hale and the Preests could not be convicted of stealing because they did not take the Grapes from a stall but cut them off the Vines, it does not necessarily follow that it is an unpunishable offence to take Grapes the property of other people off their Vines. Taking the scissors was no doubt larceny, and for cutting the Grapes the prisoners ought to have been charged under the Malicious Injuries to Property Act, upon which a conviction might easily have been had. Morally thievish though it may be, it is not larceny at common law to take Grapes from the Vines, but a punishable offence nevertheless."

— MR. H. MARTIN, Paris, writes as follows in reply to Mr. J. Jackson, in our issue of October 6th, relative to the French "BETTERAVE CRAPAUDINE"—"Your correspondent's experience of this Beet does not prove at all against the plant, but against the seedsmen who sent him the strain. The true type of the crapaudine is 4 inches broad at the superior part, and becomes very regularly thinner until it reaches the length of 11 inches, which is the average. The top is rather flat, and does not stand more than 1 inch out of the ground. The leaves are not abundant, laying on the ground, of a dark green colour washed with crimson; the leafstalks violet red. The skin is rough, barked, and the pulp is very dark and succulent. In all a very distinct and good vegetable, much valued on the Continent. If Mr. J. Jackson would try a second experiment I should be very glad to send him some seeds, hoping that next time his labour will not be lost in obtaining nearly a Mangold Wurtzel instead of a Beet."

— WE announce with regret the DEATH OF MR. A. INGRAM OF ALNWICK CASTLE GARDENS. Mr. Alexander Ingram, says the "Newcastle Journal," who for the last fourteen years has been head gardener to His Grace the Duke of Northumberland at Alnwick, died on Saturday last after a short illness. Mr. Ingram was a native of Aberdeenshire, but after serving his apprenticeship in the gardens of the Earl of Aberdeen at Haddo he went as foreman to Newby Hall in Yorkshire, afterwards removing into the south of England, from which he came to Alnwick Castle Gardens in 1867. Mr. Ingram was well known, not only as a judge, but as a successful exhibitor at some of the principal fruit shows in the United Kingdom; and his services were always in request to act as judge at the various local shows, in none of which, except at Newcastle, did he ever enter the lists as a competitor. He was thoroughly devoted to his profession, every branch of which he was master, and he had the gift of being able to impart his own information to others. His advice was eagerly sought after by all the amateur Grape-growers in the neighbourhood as to the best means of constructing vineries, planting the Vine, &c. He will long be remembered by those who have visited the gardens at Alnwick Castle, which, under his superintendence, have been greatly extended and artistically laid out.

— A CORRESPONDENT sends the following note upon ORCHIDS IN FLOWER AT THE TRINITY COLLEGE BOTANIC GARDEN, DUBLIN—"Vanda cœrulea has been in bloom five weeks and is still fresh. Odontoglossum grande is bright and clean, with a spike of large flowers half a yard long. Ptilmna nobilis bears twenty or thirty flowers; and the bright golden Oncidium Rogersii sets off the rosy lilac blooms of the pretty little Indian Crocus

Orchids. *Odontoglossum madrense* has a charmingly fresh almond-like odour. *Epidendrum vitellinum majus* and *E. prismatocarpum* are pretty, and the true *Cattleya labiata* is opening two spikes of eight flowers. The plant of this is of the true old autumnal-blooming variety, having plump, long, smooth, fluted pseudo-bulbs and a double sheath, from which its stout flower-spike protrudes. *Odontoglossum Alexandræ*, *O. Rossii majus*, *O. pulchellum majus*, *Oncidium cucullatum*, and the winter-flowering *Lælias* of the *L. anceps* section, are fast throwing up their bloom-spikes; so also *Calanthe Veitchii*, *C. nivalis*, and *C. vestita*. *Dendrobium heterocarpum*, *D. nobile*, and other species are also showing for bloom. Lady's Slippers are a feature. *C. Sedeni* is nearly always in bloom. *C. Harrisianum* and *C. villosum* var. *Boxalli* are also coming into flower. The true *C. insigne* var. *Maulei* and the still more rare and lovely *C. violaceum punctatum* look well, and will shortly become very effective."

— A WEEK or two since we noted that the annual public EXHIBITION OF CHRYSANTHEMUMS AT FINSBURY PARK had been opened, and as the plants are now in excellent condition a better opportunity could not be chosen for visiting the collection. A great improvement is observable since last year both in the cultural results and the accommodation provided for the plants. A substantial span-roofed structure 100 feet long and 18 feet wide has been erected, with moveable lights, abundant means of ventilation at the sides, and two rows of small hot-water pipes (2 and 3-inch) are laid on each side, which when necessary assist in removing excessive moisture, or affording protection if the weather prove very severe. The plants are arranged in a bank in the centre, sloping to the sides with a path round, so that visitors can view the plants both individually and collectively. Eleven hundred plants are included in the house, representing about two hundred of the best varieties in cultivation. The blooms are abundant, and in the majority of instances very fine; indeed many are quite up to exhibition standard in size, substance, and quality, and there are several which it is doubtful if the most skilful dresser could improve. To enumerate all the varieties that are represented by really good blooms would occupy too much space, but the following are especially noteworthy—*Refulgence*, *Prince and Princess of Wales*, *Bronze Jardin des Plantes*, *Golden George Glenny*, *White Globe*, *Barbara*, *Empress of India*, *White Beverley*, *Julie Lagravère*, *President*, *Comte de Morny*, *Elaine*, *Le Negre*, *James Salter*, *Mons. Charles Hubert*, *Criterion*, *Gloire de Toulouse*, *Triomphe du Nord*, *La Nympe*, *Mons. Crousse*, *The Cossack*, *La Charmeuse*, and *Bouquet Fait*. As compensation for the liberality of the Board of Works, and the efforts made to render the Exhibition attractive by Mr. Cochrane and his assistants, it is satisfactory to state that its popularity is thoroughly established, and on Sunday last it is estimated that several thousands of visitors passed through the house.

NOTES ON POTATOES.

I THINK if a few more cultivators would follow Mr. Laxton's example and give their experience, it would be both acceptable and useful, especially when it has reference to new varieties. I have tried a few of them this season, and the best I find is Suttons' Reading Hero. I planted 7 lbs. of that variety, and the produce was 262 lbs. of good sound tubers grown without manure. I left them in the ground until the middle of October before lifting, and then they remained on the ground another fortnight before taking them in to weigh them.

I am of opinion that no variety of Potato will retain a robust constitution with good quality more than ten years, consequently the public are very much indebted to the successful raisers of new varieties which combine quality, quantity, and disease-resisting properties. We can easily enumerate many good varieties, or rather what were good in their day, that are not reliable now, the Fluke for instance. Lapstone Kidney, an excellent and special favourite of mine, is now suffering from blindness and debility.

Paterson's Victoria is this year worthless with me, and many others are going the same way. And, again, what a mainstay was the Champion two years ago; nothing withstood the wet, cold, sunless season like it. *Magnum Bonum* was in its infancy at that time, at all events with me, but last season and this there has been nothing to equal the *Magnum Bonum* here for general purposes. Now, I think, is the most convenient time for growers to give their experience for the public benefit; but I am afraid many good gardeners, like cooks, consider the Potato beneath their notice.—C. A. PEARSE, *Grey's Court, Henley-on-Thames*.

ROYAL HORTICULTURAL SOCIETY.

NOVEMBER 8TH.

VISITORS to this meeting, in what is usually regarded as one of the dullest months in the year, were no doubt somewhat surprised at the abundance of exhibits. Plants, fruit, and vegetables were all largely and well represented, the Council-room and vestibule being completely occupied. Both Committees were also well attended by the members, and the meeting was altogether highly satisfactory and interesting. The collections of vegetables staged in competition for Messrs. Sutton & Sons' prizes also formed an important feature.

FRUIT COMMITTEE.—Harry J. Veitch, Esq., in the chair. Mr. J. Read, The Gardens, Moat Mount, Mill Hill, Hendon, sent six bunches of Lady Downe's Grapes of moderate size but well coloured. A letter of thanks was awarded. Messrs. Carter & Co., High Holborn, staged samples of Carter's Silver Globe Onions from the south of Europe. They were of moderate size and very even. Fine examples of the Giant Rocca Onion of Naples were also contributed. A letter of thanks was awarded. Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, sent a green-fleshed Melon very neatly netted. Four varieties of seedling Apples, mostly small, were also staged. Mr. C. Howe, The Gardens, Benham Park, Newbury, had a good fruit of the scarlet-flesh Melon William I., well netted. Mr. Burnett, The Gardens, Deepdene, Dorking, exhibited a dish of Ecklinville Seedling Apple for comparison with Lane's Prince Albert.

Mr. J. Hudson, gardener to H. J. Atkinson, Esq., Gunnersbury House, Acton, sent two bunches of Alnwick Seedling Grape well coloured. A cultural commendation was awarded. Some fine Pears were sent by N. J. Vivian, Esq., Sion House, Longueville, Jersey. One dish of six Chaumontel weighed 7 lbs. 6 ozs. One fruit of this variety weighed 1 lb. 13 ozs., and was said by the exhibitor to be the heaviest Pear that has been grown in Jersey. Six fruits of Doyenné du Comice weighed 5 lbs. 10 ozs. A cultural commendation was awarded. Mr. Charles Turner, Slough, showed several seedling Apples, one of which was considered very promising, and the Committee desired to see it again. Mr. T. Sells, The Apiary, Uffington, Stamford, sent a seedling Apple said to be "of vigorous growth, a heavy cropper, good for cooking or keeping." Mr. Valentine Richards, South Wootton Rectory, King's Lynn, contributed eight samples of a seedling Apple gathered from a tree said to have been raised from seed and never grafted. The variety is said to keep well till April or May. A letter of thanks was accorded, but the Committee could not express an opinion as the fruit was unripe; they wished to see it again. Mr. R. Nisbet, The Gardens, Aswarby Park, Folkingham, exhibited a dish of Beauty of Aswarby Apple very neat in form. Mr. Thomas Taylor, gardener to J. McIntosh, Esq., Duneevan, Weybridge, staged fine examples of the Apples Landsberger Reinette and Golden Noble. The former was characterised by the Committee very handsome, but they desired to see it again earlier next season. Mr. J. Roberts, gardener to the Baroness Rothschild, Gunnersbury Park, exhibited seven fine even fruits of Queen Pine Apples. A cultural commendation was awarded. Mr. J. Ollerhead, gardener to Sir H. Peek, Bart., Wimbledon House, exhibited a bunch of the new Grape Ollerhead's White, which was not considered sufficiently distinct from Foster's Seedling to merit an award.

Messrs. H. Lane & Son, Great Berkhamsted, were awarded a first-class certificate for their seedling Apple *Prince Albert*, which has been now tried for some years, and is considered by several growers to be one of the finest culinary Apples. The fruits are of good size, varying considerably in shape, green or yellowish, with streaks or a suffusion of red on the side exposed to the sun. They are remarkably solid and heavy.

In the vestibule the following collections were staged. Mr. T. Mainwaring, Marl Place, Brenchley, Kent, was awarded a bronze medal for a fine collection of 113 varieties of Apples, but many wrongly named. Mr. W. Skinner, Beresfords, Maidstone, was awarded a silver Knightian medal for a large and very handsome collection of Apples, comprising a hundred dishes, most of the fruits being in fine condition. Messrs. Sutton & Sons, Reading, had large collections of Potatoes and Kales, for which a silver Knightian medal was awarded. Messrs. Veitch & Son were awarded a bronze medal for a collection of about a dozen varieties of Celery and a large number of Turnips. Mr. Ollerhead sent a sample of his Amateur's Friend boiler formed of inch pipes to constitute a boiler and firegrate combined. It was about a foot square, and was stated to be capable of heating 70 to 80 feet of 4-inch piping.

MESSRS. SUTTONS' SPECIAL PRIZES.—The competition in all these classes was very keen, and the exhibits generally of fine quality.

The chief class was that for twelve distinct kinds of vegetables, in which eleven competitors appeared. Mr. J. Austin, Ashton Court Gardens, Bristol, was first with a clean, even, handsome collection including Suttons' Superb Brussels Sprouts very fine, Hollow-crowned Parsnips, Improved Reading Onions, Suttons' King Cauliflower, Leicester Red Celery, Hathaway's Excelsior Tomato, Sir Joseph Paxton French Beans, Scarlet Intermediate Carrots, Suttons' Snowball Turnip, St. Patrick Potatoes, and Nutting's Dwarf Red Beet. Mr. R. Phillips, gardener to Capt. Jackson, The Deodars, Meopham, Kent, was a very close second with good Trophy Tomatoes, King of Cauliflowers, Student Parsnip, Sulham Prize Pink Celery, Suttons' Matchless Brussels Sprouts, Ne Plus Ultra Peas, and Early Snowball Turnips among others. Mr. Meads, The Gardens, Beckett Park, Shrivensham, was third with good samples, especially of Celery, Beet, Carrots, and Cauliflowers. Mr. W. Wildsmith, gardener to Viscount Eversley, Heckfield Place, Winchfield, was fourth; and Mr. Lloyd, The Gardens, Brockwood Asylum, Woking, fifth.

For twelve Suttons' Improved Reading Onions there were ten entries. Messrs. Wildsmith; C. Howard, Bridge, Canterbury; T. Haines, gardener to Earl Radnor, Coleshill House, Highworth; and C. Ross taking the prizes in that order. For twelve tubers of Suttons' Magnum Bonum Potatoes Messrs. Meads; H. Millen, gardener to the Marquis of Donegal, Hamstead Park, Newbury; C. W. Howard, and C. Herrin were the successful exhibitors, all showing good samples. For twelve tubers of Suttons' Reading Abbey Potatoes there were nine competitors; Messrs. G. Donaldson, The Gardens, Keith Hall, Inverurie, N.B., W. Meads, R. Lloyd, and T. Haines securing the prizes. In the two other classes for Reading Hero and Woodstock Kidney there were collectively seventeen entries; Messrs. Howard, Mead, Millen, Phillips, Emson, and Haines being the chief exhibitors.

FLORAL COMMITTEE—W. B. Kellock, Esq., in the chair. Mr. J. Woodbridge, The Gardens, Syon House, was accorded a vote of thanks for a dozen vigorous Bouvardias in 12-inch pots. The specimens were in some cases a yard in diameter, and flowering very freely. Messrs. James Dickson & Sons, Newton Nurseries, Chester, sent plants of a sport from the variegated *Euonymus radicans*. They were more erect in growth with much larger leaves than is usual in the common form. Mr. H. James, Castle Nursery, Lower Norwood, contributed a pretty group of Orchids, including good specimens of the bright yellow-flowered *Oncidium varicosum*, the brownish *O. prætextum*, the deep red-striped *Odontoglossum Insleayi leopardinum*, and the bright brown *Oncidium Forbesi*. Small plants of *Adiantum cuneatum* were arranged with the Orchids, and served to enhance the effect. A vote of thanks was accorded. Mr. C. Turner, Slough, exhibited a number of Tree Carnations, some of which were very handsome. Scarlet Nonpareil (Turner) was particularly fine with full rich scarlet flowers, and very freely produced. Brightness (Turner), bright scarlet, was also very attractive.

Messrs. H. Cannell & Sons, Swanley, Kent, had a large group of Primulas, including Swanley Carminata; Swanley Purple, very rich crimson; Lilacina Rubra Improved, very large flowers, deep crimson; Delicata, light pink; Swanley Red, deep and rich in colour; and Swanley White, flower very large, of good form and pure white. These Primulas were greatly admired for their excellent condition, the richness of the colours in the red varieties being surprising. A cultural commendation was accorded, but some members of the Committee thought the award of a medal would have better signified their appreciation of the plants. Mr. Hudson, The Gardens, Gunnersbury House, Acton, was awarded a vote of thanks for a specimen of *Chamaedorea glaucifolia*, 10 feet high, in a 32-sized pot, in fine health and bearing three panicles of flowers. Messrs. S. Mahood & Son, Windsor Nurseries, Putney, sent several seedling Chrysanthemums, the most noticeable being a bronze-flowered Japanese named Mrs. Townsend. Mr. Wiggins, gardener to Henry Little, Esq., Hillingdon Place, Uxbridge, was awarded a vote of thanks for a group of Pompon Chrysanthemum Sœur Melanie, a floriferous and beautiful variety with pure white neatly formed flowers. Several handsome seedling Primulas were also shown. Messrs. Smith & Larke, Kensington, exhibited a pretty bouquet and wreath of yellow and white Chrysanthemums.

Messrs. James Veitch & Sons, Chelsea, exhibited a group of Chrysanthemums raised by the late Mr. Alfred Salter. They included Brunette, a neat bronze Pompon; Purple Pompon, with purplish pink shell-like florets; Mary Major, a white Japanese; Lord Beaconsfield, a peculiar Japanese variety, the florets red on the upper surface and yellow below; and Marquis of Lorne, something of the reflexed type, deep red tipped with yellow. Mr. J. Roberts, The Gardens, Gunnersbury Park, Acton, sent a group of dwarf Scabious, the plants being in 32-size pots, and flowering freely. Mr. H. B. Smith, Ealing Dean Nursery, was accorded a vote of thanks for a group of fine Cyclamens, flowering extremely well. Mr. H. Bennett, Shepperton, Middlesex, sent a large specimen of the Tea Rose Madame de St. Joseph bearing a large crop of fruits, which was said to be "the second crop this season produced by manual fecundation." Mr. R. Clarke, Twickenham, exhibited a fine group of Cyclamens, the flowers being large, the habit compact, and the foliage vigorous. A cultural commendation was awarded. A vote of thanks was accorded to Messrs. Heath and Son for blooms of their double *Lapageria rosea*, each with from eight to ten petals. From the Society's Garden, Chiswick, a group of Primulas was shown, and cut blooms of the scarlet *Salvia Bruantii*, the bright blue *S. Pitcheri*, and the deep pink *S. Betheli*. A pan of

six plants of *S. Pitcheri* bearing some dozens of spikes was very handsome.

First-class certificates were awarded for the following plants:—

Begonia socotrana (Veitch).—A handsome and distinct species of *Begonia* from the island of Socotra, where it was found by Professor Balfour and introduced to Kew. The leaves are peltate, about 6 inches in diameter, and the flowers are bright rose, even in form, and borne in loose panicles.

Chrysanthemum Rex Rubrorum (Veitch).—A pretty Japanese variety, with blooms of moderate size, full, and even in form, deep maroon in colour, with narrow twisted florets.

Chrysanthemum Lady Selborne (Salter).—The white sport from James Salter which has been frequently noticed in this Journal. Six blooms of the sport were shown with the same number of the parent, and a certificate was awarded for it almost unanimously.

Coleus Columbine (King).—A peculiar and striking variety, with leaves 3 to 4 inches long, ovate, crenate margin, and irregularly dashed and streaked with crimson, maroon, green, and white.

Heliconia aureo-striata (Bull).—A Musaceous plant, with ovate leaves 8 inches long and 5 broad at the base, tapering, green veined with yellow. The under side of the leaves has a reddish tinge.

Dracena Lindenii (Bull).—An attractive plant, with leaves a foot to 15 inches long, tapering, about 3 inches broad in the widest portion. A band of dark green with a few greyish streaks extends down the centre, the margins being yellowish white. The leaves are slightly recurved. It was shown with *D. fragrans variegata* for comparison, the latter having a light band in the centre of the leaves.

Davallia fijiensis plumosa (Bull).—A graceful Fern, with leaves a foot long and about the same across the base; slightly triangular in form, drooping towards the apex, which is tapering. The fronds are finely divided into linear dark green segments, imparting a feathery appearance to them.

Masdevallia chimera (Bull).—This was certificated as the true *M. chimera*, described by Prof. Reichenbach. It has erect scapes, bearing one or two flowers with long-tailed sepals spotted with deep red. The labellum is small, white, and shell-like.

Primula sinensis variegata.—Mr. C. Herrin, The Gardens, Chalfont Park, Gerrard's Cross, was accorded a certificate for this plant, a clearly and distinctly variegated form of the common Chinese Primrose.

Croton Laingii (Laing).—A distinct and pretty *Croton*, with long narrow drooping leaves slightly twisted, dark green for about half their length from the apex, the remaining portion being bright yellow, the stem having a tinge of red. It is very graceful in habit.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker, K.C.S.I., in the chair.

Gravel.—Mr. Pascoe exhibited a specimen of disintegrated granite from Roche, Cornwall, resulting from the washing of china clay, and recommended it as a gravel for gardens. The Chairman remarked that it had been previously suggested to be utilised for that purpose, but its white colour was objectionable, as also was its want of binding power unless clay be mixed with it.

Ehret's Paintings.—A series of beautifully painted plants 130 years old with well-preserved colours, and done on vellum by Ehret, were exhibited by Mr. Scofield.

Mycelium of Polyporus Squamosus.—Mr. W. G. Smith showed specimens of this found beneath the bark of Elm trees about London, to which it does much damage. It appears to follow the tracks of the beetle *Scolytus destructor*, so common in Elms.

Pears Malformed.—Dr. Masters showed Pear stalks swollen, but without any real fruit within, received from Mr. Burbidge of Dublin Botanic Gardens. It was said to have more flavour and sugar than the Pear itself.

Monstrous Cyclamen.—Mr. Boscawen forwarded a flower with leafy sepals, a not uncommon state.

Cycas revoluta.—A number of seed-bearing abortive leaves in fine condition was sent by Mr. Hudson of Gunnersbury.

Laurustinus.—The Rev. G. Henslow showed branches and roots to illustrate a common condition of many Rosaceæ. The leaves grow pale, curl, and the epidermis separates easily from the subjacent tissue. The stems die and are then overlaid by a fungus (*Corticium* sp.), the roots being brown and dead. The cause appeared to be in this instance want of nutrition, as the roots penetrated a dry gravelly subsoil. Mr. Scofield remarked he had experienced the same thing with *Laurustinus* on the London clay, and attributed the death to similar cause of want of nourishment. Sir Joseph D. Hooker remarked on the frequent want of power to ripen its wood in this country.

LECTURE.—The first group of plants referred to by Rev. G. Henslow was a series of Bouvardias of Mexican origin. He called attention to the fact that they belong to the same family as the Coffee, Cinchona, Madder, and our humble English Galiums, which, though so different in appearance, had their flowers constructed on the same plan. The little burr-like fruit of *Galium Aparine*, or Cleavers, is said to have the same flavour as Coffee when roasted.

As illustrative of methods of fertilisation the lecturer took *Salvia*, showing the peculiar oscillating motion of the stamens, which is adapted to insects, so as to convey pollen from one flower to another. Certain species with long-tubed corollas have apparently "degenerated" from the forms which best illustrate that process, as the stamens have become straight and rigid, so that they cannot oscillate at all. He also showed the method of fertilisation in Primroses

and Amaryllis. A Tea Rose exhibited by Mr. Bennett, profusely covered with fruit, showed the beneficial effects of artificial fertilisation, the crop being the second of this season.

A branch of *Hippophaë rhamnoides* covered with fruits gave occasion to describe the different organs utilised in forming succulent fruits, it being a fleshy calyx in this plant, as in Mulberry, while in Pears and Apples it was the flowerstalk. A curious illustration was seen in a specimen from Dublin Botanic Gardens, in which the stalk had alone swollen, but contained no fruit whatever within it. On the other hand, in *Cycas revoluta*, fruiting specimens of which were forwarded by Mr. Hudson of Gunnersbury, it was the fleshy coat of the seeds, which are borne on the edges of reduced leaves, and not within pods.

In alluding to *Cycas*, Mr. Henslow remarked on the former abundance of Cycadaceous plants in England, as testified by the fossil remains found at Gristhorpe near Scarborough, and at Portland, Dorset. Trunks of these trees form part of the rockwork in the conservatory of the Royal Botanic Gardens, Regent's Park.

MULCHING ROSES.

WE have long been maintaining against all comers that the mulching of Roses in cold late localities does nothing but mischief, and is only good for warm districts when the coddling given would not so readily result in weakening the constitutions of the plants, but since Mr. Taylor condemns it we are now convinced that it is a mistake everywhere. We will answer for it that it is ruinous in the north. So long as we continued to mulch, the results of the arctic winters experienced here for the last decade have been disastrous. Two or three years ago we lifted all our Roses, planted them deeply in well-prepared soil, left them without a mulch, have given no manure since, and the results are such as were never heard of before, while the death rate has become very low. We intend saying more on this subject soon, as justice cannot be done to it in a brief note. It is worth adding, however, that we now invariably plant our Roses so deep that, though cut to the ground line, they are not destroyed but speedily become own-rooted plants, and perhaps this is the best way of obtaining Roses on their own roots when this is thought desirable.—A SCOTCHMAN.

PEARS FOR WALLS.

"A. H. H." is evidently a man of valour, if not a man of might. His prescience is of a very unusual kind, and enables him to know that I am "no gardener," on the mere evidence of a short article—not of my work, which he knows not. In caution he is a little wanting, but that is only according to nature, for it is observable that if a man is very strong in one faculty he is usually weak in another. I am, says this authority, "no gardener," but a "sentimentalist and a dreamer." As to my non-gardening capacity I certainly regret that I have not better use of my time; but there are at least a few friends who have a slight idea of gardening, who, too generously perhaps, estimate me more favourably, and one of them happens to be Mr. David Thomson, who was once good enough to write his estimate of my competency, which I now possess. The question now stands thus: There is the mere word of one man against the experience of another; if the former will not yield his point he has only one alternative, and that is to regard my friend Mr. David Thomson "no gardener" also. This is rather awkward for "A. H. H.," but I cannot help it, and a little more caution and a little less dogmatism would have avoided the dilemma. I am writing in the best possible humour, and under the impression that I am rendering myself quite agreeable to my critic, whose article, according to my reading of it, invited remarks of this nature.

Before proceeding further I must remind your correspondent that the subject of my letter was Pears for walls, and not walls *versus* glass structures. I am not likely to say anything against a well-appointed orchard house. I know by much experience how valuable such houses are, and I wish all gardeners had one of them, therefore I am not to be hooked by that bait so adroitly thrown out; in fact, I am inclined to go further than "A. H. H." and say that I suspect glass shelters for fruit trees and boundaries for gardens can be erected even cheaper than walls. But that is not the question, and they are at least not likely to cause many garden walls to be removed. I like walls and orchard houses too, and I have nearly always observed that gardeners in unenclosed or hedge-enclosed gardens have generally a strong desire for walls, as I have to see them profitably covered with well-managed trees.

Your correspondent not only in his wisdom accuses me of being "no gardener," but he charges me also with inconsistency, inasmuch as he says I "admit that cordons may be so trained as to be

as handsome as ever trees trained in the old system could be." I now ask "A. H. H." to reproduce a sentence from my article which carries that as its natural meaning. If he can do this he will be justified in declaring me inconsistent; if he cannot, the inconsistency will rest somewhere else.

I have said "A. H. H." is a bold man, not so much because of his strong expressions towards me, but because he could have penned his article after reading Mr. Warner's evidence of the advantages of Pear stocks on page 355, and the report of Mr. Taylor's trees and practice on page 380. Although the writer of that article qualified his remarks with references and a caution, he could not ignore what he saw, and Mr. Taylor can scarcely be described as "no gardener." But I suspect I unwittingly misled "A. H. H." in my last paragraph when I asked if there were no readers who desired with me to see the old English culture and training of Pears on walls, and who could at the same time say "how the work should be done." It was not because I did not know how to grow and train such trees that I penned that sentence, for in truth I can do the work better than describe it; but I thought there might be others who could describe the practice as well as carry it out. Yet the fact that I have grown and trained and gathered fruit by bushels from such trees as I referred to and advocated, does not constitute me a gardener, still I submit my experience does excuse me for writing the article that your correspondent honoured me by dissecting.

I will now return the compliment and endeavour to dissect his article on page 396. As I have disposed of the question of orchard houses *versus* walls at the end of the communication I may as well continue from that point and read the letter backwards. I first pause at the extraordinary question as to whether I have "never heard of Pears failing on walls because of bad weather?" I have never been so foolish as to imply that bad weather does not affect Pears on walls. I will now ask my friend a question quite as reasonable as the one he has submitted—namely, Did he ever hear of bad weather spoiling the Wheat and Potato crops? Assuming he has heard of such a calamity, I will further ask him if he would discontinue the culture of such crops? If he does not do this he cannot consistently object to such trees as I recommended being grown against walls, unless at the same time he can give an assurance that Pears on the Quince are *not* injured by bad weather. Such questions, however, as applied to the subject under consideration are vain and not worthy of discussion.

I pass next to the celebrated transitional theory. Pomology will soon be revolutionised. Let us adopt a mere hand-to-mouth policy in fruit culture; "Sufficient unto the day," &c., never mind our grandchildren. These are the plain teachings of "A. H. H." He is confessedly a disciple of Sir Boyle Roche, who refused to do anything for posterity because posterity had done nothing for him. This is the jerry builder's creed. I prefer something more solid, more really profitable, and more permanent. The new varieties of Pears were going to drive the old ones away thirty years ago, but the old sorts are with us yet as popular and as good as ever, and I am not sanguine of the speedy fulfilment of "A. H. H.'s" prophecy, seeing how many thousands of Apples on Crab stocks and orchard Pear trees are now being planted. Experience is proving that the millions of toy trees that have been planted have not improved the market fruit supply, and a reaction is setting in in favour of the old English standard trees for affording an abundant supply of useful fruit at a minimum cost.

And now to border-making for Pears for walls. My critic has weakened his case by exaggeration. That "concreted borders 30 feet wide and made of turfy loam are necessary in ninety-nine cases out of a hundred" is a simple fallacy. Why should a Pear tree require such a waste of labour and material to grow against a wall when it will grow freely without in an open field or garden? My friend himself must be the dreamer here; and then when he says that trees can be grown with a "hundredth part of the work" by "lifting and root-pruning" that is necessary under the old system, he must be indulging in mere sentiment. When he has tried both systems fairly he will modify that statement. The fruit farmers who pay £5 an acre for their land do not indulge in "root-pruning and lifting," and they would assuredly do so if it was a "hundred times" cheaper than the "old system."

Let no one be deterred by this border bugbear from planting Pear trees on Pear stocks. It is a mere phantom. I am certain I have had more experience on the subject than "A. H. H." has, or he never could have ventured on such a statement. But your correspondent goes on to say what I agree is the main question—namely, "Which system produces the best fruit and the greatest quantity from a given space?" On this point I can adduce evidence founded on a fair trial of both systems—trees that I

myself planted, trained, and tended for a number of years. Can he? If so I await proof of the "hundred times" better results of the "root-pruned and lifted" trees on the Quince. I challenge him to produce them, and when he has failed, as he will fail, I will show him the other side of the question. I am simply on my defence, and it is for my assailant to prove his statement.

There remains only one more question to deal with. After a peculiar allusion to the "splendid and splendidly trained trees," I am asked why such trees were grubbed up. Who told my critic they were "grubbed up?" All of them have happily not gone. Many trees have been removed, and properly, after being worn out by generations of good work; many have been removed by mistake. I am able to adduce some rather striking evidence on this point also, but not now. In the first place I fear I am

encroaching on valuable space, and in the next I am desirous of hearing further from your correspondent, who, I feel, has the advantage over me as a writer, but I question very much if he has had better facilities for gaining a knowledge of fruit trees and their culture than has fallen to my lot during an experience of thirty-five years, even if I am "no gardener."—JOHN BULL.

THE MAIDENHAIR TREE.

SEVERAL inquiries have reached us of late respecting this distinct deciduous tree, and many sprays of it have been sent for identification, that we answer them and anticipate other inquiries by submitting the annexed engraving and extract from Messrs. Veitch's excellent "Manual of the Coniferae."



Fig. 70.—GINKGO BILOBA. (1) Leaf of sterile branch; (2) of fertile branch; (3) male, or pollen-bearing flowers; (4) female flowers; (5) fruit.

"In the Ginkgo or Salisburia we have a remarkable exception to the Yew-like aspect which characterises all the other hardy Taxads. So greatly does the Maidenhair Tree differ from all other coniferous trees, that its affinity to them would scarcely be suspected on superficial inspection. An examination of the flowers, and especially of the fruit, and comparing them with the same parts of the common Yew, will show, however, that the Ginkgo belongs to the same tribe, although an isolated member of it.

"The fruit or berry is by no means common in this country, for the Ginkgo is dioecious, and the greater number of the large trees growing in England are stamiferous, or males. Fertile trees are still rare, and both kinds require in our climate to attain a considerable age before they produce flowers.

"Not much can be said of the economic value of the Maidenhair Tree. The wood is yellowish white, with a fine close grain, and moderately hard. It is easy to work, receives a fine polish, and resembles in its general appearance citron wood; it is more solid

and strong than the ordinary white woods of Europe. The Ginkgo is peculiar among coniferous trees for the absence of resinous secretions. In China and Japan it is cultivated for the sake of its fruit, the nuts being much esteemed; and in Japan, in Kämpfer's time, these formed part of every entertainment.

"The Ginkgo is of geological antiquity. In the Miocene period it included several species or forms which were spread over the greater part of the northern hemisphere in company with the Glyptostrobus and Liriodendron, trees that are still associated with it in its present habitat.

"Ginkgo is the Chinese name, meaning 'deciduous.' This name was adopted by Linnaeus, and by priority of application should be preferred to Salisburia, the scientific name hitherto generally current in this country. It is called the Maidenhair Tree from the resemblance of the leaves in shape to the pinnules of Adiantum Capillus-Veneris, the Maidenhair Fern."

We have only to add that the Ginkgo biloba, or Salisburia adiantifolia, is one of the most distinct and picturesque trees that

can be grown on lawns and in pleasure grounds. It is quite hardy, and many fine specimens are established in various parts of the country. The leaves usually assume a bright yellow colour in the autumn, and the trees then have a beautiful appearance.

GRAPES AT THE HANDSWORTH (SHEFFIELD) SHOW.

IN the *Journal of Horticulture*, Oct. 13th, page 341, allusion is made to the Grapes shown at Handsworth by Mr. Simpson of Wortley, who was awarded the first prize for black Grapes. As one of the judges in the open class, I had every opportunity of examining the exhibits very closely, and I must certainly say the two bunches of black Grapes (Alnwick Seedling) were fine samples, being large both in bunch and berry, and carrying a fine bloom, showing the careful treatment they had received, there being no rubbing or marks to spoil the appearance of the fruit. As regards the brushing-up advised by your Edinburgh reporter to the gardeners in the neighbourhood of Sheffield, had he seen the quantity of good fruit shown at Handsworth I think his opinion would have been changed of the ability of Grape-growers in the locality of Sheffield; for I believe they are able to keep their own ground against others, no matter from what part of the country they may come, especially if such excellent Grapes as those staged by Mr. Simpson at Handsworth are forthcoming.—J. JEFFERSON, *Workshop*.

SEASONABLE NOTES ON GREENHOUSE PLANTS.

IN all well-ordered establishments the operation of removing indoors such plants as Camellias, Azaleas, Cytisuses, and other hardwooded plants which were placed outside during the summer months, is now completed. Previous to arranging the plants in their winter quarters a careful examination should be made of the drainage, removing all worms. Should it be difficult to find them, a few waterings with weak lime water will have the desired effect. If the drainage is foul carefully remove it, and supply clean material. See that the exterior of the pots receive a good cleansing—this is an operation too often neglected by many gardeners; also carefully remove all inert soil from the roots of the plants, and apply water with care and judgment.

Camellias, Azaleas, Cytisuses, and similar plants are greatly benefited by occasional supplies of clear soot water. The latter produces excellent effects upon Camellias, causing their leaves to assume a fine, dark, glossy appearance, and greatly assisting the formation of flower buds. Some growers repot their Camellias and Azaleas at this season; but we question the soundness of such a practice, since from close observation we are convinced that the best period to repot these plants is in spring, when they commence growing. By so doing the soil does not become soured and saturated before the roots penetrate it. Again, unless the repotting be performed very carefully at this period the plants will shed their flower buds. Care must also be taken that the operation is skilfully performed.

Cytisuses, Coronillas, and Acacias should have their drainage examined also, and subjected to the same cleansing as directed for Camellias. Occasional applications of weak liquid manure will be found highly beneficial during their flowering period.

Ericas and Epacris should be treated similarly to the foregoing as regards cleansing. The plants should occupy a light airy situation and receive careful attention in watering. Those useful and indispensable Ericas, *hyemalis*, *gracilis*, and *Wilmorci*, will soon be in flower. Chrysanthemums are now rendering greenhouses and conservatories gay with their large brilliant flowers. Some growers plant these out and lift in September, but for ordinary establishments we do not consider the practice a commendable one. The system may doubtless answer well where large plants are required, but, like your correspondent "SINGLE-HANDED" (page 341), we prefer those grown entirely in pots. It is, however, an excellent practice to plunge those grown in pots in a bed of coal ashes or cocoa-nut fibre refuse. Thus treated the labour of watering is considerably reduced.

Callas (*Richardia æthiopica*) are useful plants for winter flowering. With some growers these are also planted out and lifted in the autumn. This is a good and speedy plan for growing young plants, but for flowering purposes we prefer those grown in pots.

Eupatorium odoratum is a useful free-flowering plant, and deserves to be grown much more than it is. It is of easy cultivation, and would certainly amply repay for the little attention bestowed upon it by a bountiful supply of its pure white flowers. By judicious management the plants may be had in bloom from

the present time till spring. Liberal applications of weak liquid manure should be given to each of the foregoing plants.

Habrothamnus Aubletii and H. elegans are useful free-blooming plants, especially the former, when planted out.

Cyclamens are growing freely, and in some cases flowering freely too. Occasional waterings with weak soot water will greatly assist them.

Primulas are coming rapidly into flower. They should not be subjected to a lower temperature than 55°, and occupy a position as near the glass as possible. Water them with tepid clear soot water. The double varieties, especially Gilbert's strain, are lovely in form and colour, and valuable for cut purposes. Cinerarias will need all the light and air that can possibly be given. Supply them frequently with liquid manure in a weak state.—A SOUTHERN GARDENER.

SCRAPS ABOUT FRUIT.

NEW APPLE THE QUEEN.—There is nothing the public are more sceptical about than new fruits, and we need not wonder at it when there is so many old favourites that have stood the test of time. But in the new Apple The Queen, which the Messrs. Saltmarsh & Son of Chelmsford exhibited last autumn in London, and to which the Royal Horticultural Society gave a first-class certificate, the public will be able to secure one of those sterling novelties which only appear perhaps once in half a century, and which all fruit-growers will welcome. In appearance The Queen is one of the most beautiful of Apples, being regular and even in its outline. Skin pale lemon yellow nearly covered with bright crimson, with here and there broken dashes of colour, which gives the fruit a beautiful marbled and highly ornamental appearance. Flesh white, juicy, and of fine quality; will be highly appreciated as a dessert fruit as well as for culinary purposes. No doubt the public will soon become acquainted with it, as exhibitors will find it to make one of the most telling of dishes, and market growers, from its beauty, quality, and general productiveness, one of the most desirable to grow. We therefore cordially welcome Her Majesty, as she promises to take the same rank amongst Apples that the Black Hamburgh and Muscats do amongst Grapes.—W. F. BOWMAN, *Hylands*.

TWO SELECT APPLES.—A dessert Apple of the first quality, though small and beautiful in appearance, is the Jefferson. The Frogmore Prolific is well worthy of a place even in a small collection, the former succeeding well as an espalier, and the latter as a bush.—W. H. C., *Tunbridge*.

RASPBERRIES.—It was only a few days before I left Cornwall that I went through the excellent fruit gardens of Mr. William Thomas, Ridgeovan near Penzance. Mr. Thomas was then forwarding Raspberries in large barrels of about two bushels each. These went by rail, arriving at their destination safely. Mr. Thomas sends away many tons in this way every season. The variety is Fastolf, a good all-round sort.—WILLIAM ROBERTS, *Dersingham*.

BROWN BEURRE PEAR.—Generally this Pear disappoints cultivators in cold districts. Many trees have been planted as pyramids, but they are rarely satisfactory, and the only certain mode of obtaining good crops of fruit that will ripen is to grow the trees against walls. Are there not too many late Pears planted in the open, and too many early varieties occupying walls?—A. H., *North Notts*.

PEAR versus QUINCE STOCKS.—I find the Pear is the only stock I can obtain fruit from here. I have about equal number of trees on Pear stocks as on Quince. The latter are all unhealthy and very much cankered—in fact, all the Pears on the Quince stock are worthless. Those on the Pear stock are in very fair health and very little cankered, and produce good crops of fruit. The soil is light and gravelly, resting on a bed of flinty gravel. The trees are heavily mulched every spring. From my experience I find the Quince stock only suitable for heavy or loamy soil, and the Pear stock for almost any kind of soil.—R. OWEN.

PEASGOOD'S NONESUCH APPLE.—The above is without doubt one of the finest Apples grown. It is of splendid shape, size, and colour, and the flavour is nearly all that can be desired. The tree is very prolific, and bears fruit in quite a young state; therefore it is suitable for small gardens. I strongly recommend it to intending planters, as I am certain it will give satisfaction.—R. OWEN.

THE WASHINGTON APPLE.—Having the privilege of seeing

and comparing a great variety of Apples during the season, I have seen none of this year's crop to compare with the above-named sort. In appearance it is most handsome, somewhat resembling a huge King of the Pippins in form and colour, with a large and open eye like that of the Blenheim Pippin. If grown to the same perfection as the samples lately seen at Tunbridge Wells (said to have been grown in Kent), it would be an invaluable exhibition variety. Upon making inquiries as to the price of this very striking Apple, not believing my own eyes neither the card in the window, I was politely informed that there was no mistake, and in all sincerity the moderate charge of £6 for the six fruits would not be deviated from upon any condition. This is fruit-growing at a tremendous pace, it must be conceded.—W. H. CHISHOLM, *Oxon Heath, Tunbridge.*

JAMES VEITCH STRAWBERRY.—It is a question if this becomes a standard market variety, and "F. W." will act wisely to grow it on a small scale at the first for proving its merits. The fruit is large but generally flat, by no means rich in flavour, and, what is a defect for market purposes, it is deficient in colour. It is firm, and travels well, and that I think is its greatest recommendation.—A SALESMAN.

FIRM SOIL FOR FRUIT TREES.—Mr. Elliott's note on page 403 is significant. Much injury is done by digging amongst young fruit trees injudiciously. Surface fibres produce firm and fruitful wood, but by destroying or preventing such fibres strong roots inevitably penetrate the subsoil, and strong succulent growths necessarily follow.—R., *Berkshire.*

LATE RIPENING OF MARIE LOUISE PEAR.—Like "H. B.," I am growing Marie Louise upon the Hastings sand formation, but I do not find the fruit from trees fully exposed to the sun at all behind the usual season in ripening. All the trees of it had an abundant crop of fruit this year, and with one exception it ripened early in September, and was in high favour for several weeks. The fruit which did not ripen with the others, and is in point of fact still green, is from a tree against a north wall, and affords agreeable proof of the value and importance of planting trees of such a well-tried favourite in various positions, so as to prolong the time during which it is possible to enjoy its delicious fruit.—EDWARD LUCKHURST.

OUR STRAWBERRY BEDS.—The dull wet autumn has induced Strawberries to make growth of extraordinary vigour, which, if it be not destroyed by a winter either exceptionally damp or cold, may yield fruit of large size and great abundance next summer. After the crop of the current year was gathered no time was lost in securing the requisite number of runners for potting, and new beds. This done, runners, weeds, and rubbish were forthwith cleared from the beds, a heavy dressing of manure spread and dug in between the rows, and subsequently Strawberries and fresh weeds grew so fast that hand-weeding had twice to be resorted to. Where the soil was not so broken up there will be considerable risk of loss should the winter prove very wet and mild, the compact mass of soil about the roots being apt to retain the superabundant water too long.—SUSSEX.

LATE CURRANTS.—I observe in your Journal for the 6th of last month, on page 316, that a correspondent residing in Surrey mentioned having gathered Red Currants "as late as September 21st." A quantity of fine Red Currants were gathered in my garden in the north of Yorkshire on the 2nd of November, and were in flavour quite equal to the fruit in summer. The trees had, of course, been netted to keep off the birds.—N. S. N., *Ripon.*

APPLES AND PEARS AT CRANMORE HALL.—Apples and Pears have been both abundant and good. The former are principally standards, and in great variety. The best twelve varieties this season, and which are invariably found to be the most profitable, are Cellini, Stirling Castle, Hawthornden, King of the Pippins, Domino, Lord Suffield, Keswick and Manks Codlins, Royal Somerset, Spice Apple, Devonshire Quarrenden, Hollandbury, and Golden Reinette. Of Pears Marie Louise on west and south walls has perfected excellent crops of fine fruit. Winter Nelis on a south wall is unusually large, and when ripe will be equalled by few and surpassed in quality by none. Beurré d'Amanlis and Williams' Bon Chrétien, both on south walls, have produced good crops, and the early little Doyenné d'Été proved very serviceable. Joséphine de Malines invariably crops well, as does Zephirin Grégoire; but the quality of the latter is not considered first-rate. Easter Beurré on east and south walls produced good crops of valuable fruit. At one time the spurs of many of the trees pro-

jected a considerable distance from the walls, from which they thereby derived but little benefit. Before proceeding to alter this Mr. Moore, the competent gardener, on taking charge severely pruned, and brought up many of the deep-running roots nearer to the surface, working-in much fresh loamy soil at the time. The following season the old spurs were sawn off to within an inch of the main branches, the result being good clusters of fruit buds followed by valuable crops of fine clean fruit. The garden is low-lying, in a valley near Shepton Mallet, Somersetshire, and the soil is heavy and shallow, resting on a sandy clay subsoil.—W. I.

RESPONSIBILITY OF GARDENERS.

WE are in the habit of making yearly pilgrimages to famous gardens to see them, and to try to gain some knowledge if possible. As it would not be possible, nor yet wise, in our case to visit all the gardens in any given district, we generally confine our attention to those the fame of which has reached us. Now, many gardens are famed because they are great gardens, and not always because gardening is well done. This is generally only found out by personal inspection. On the other hand, small gardens only gain fame because of the way they are kept. The consequence of this is that one who only visits gardens which are famous is very apt to come to the conclusion that gardening is best done in small establishments. This is perhaps our position, and possibly we have arrived at a wrong conclusion—a conclusion to which "A MANY-HANDED GARDENER" objects, and at the same time says what I think is unwarrantable. He says very distinctly, "The very best gardening is to be found in large gardens, the very worst in small ones." That may be true, and the opposite may be true if such examples are sought and searched for, which is what we understand your correspondent to mean when he uses the word "found." But in looking at samples without searching and finding we still think that plants in pots are better grown, as a rule, in small than in large gardens. We say small gardens advisedly, for we do not think those places come under the category where no real gardener at all is employed, but perhaps some improved labourer, whose dense ignorance and incapability is only equalled by the "cheek" which made his imposture possible, and which sustains it.—SINGLE-HANDED.

I THINK it must have been a kind of a "birds of a feather" feeling that prompted your excellent correspondent "SINGLE-HANDED" to draw an invidious distinction between the productions of single-handed and many-handed gardeners. I am afraid he is "pulling the long bow," or "drawing a bow at a venture" rather, in stating that "fine specimens of Heaths or other hard-wooded plants are seldom seen except in single-handed places where the gardener supervises everything himself." Has your correspondent been in the habit of attending the Edinburgh and Glasgow Shows regularly, or has he ever visited a metropolitan exhibition, or an English provincial show, and will he tell your readers where the hard-wooded specimens staged at such exhibitions come from? Almost without exception they come from gardens where all the work is done by subordinates. I quite agree with him that the best way to do a thing well is to do it oneself, but "SINGLE-HANDED" is wrong in this matter. I happen also to know much about the locality of Eskbank, and when "SINGLE-HANDED" exemplified an excellent gardener there, and whom all will acknowledge as such, whom "competitors at local shows knew well"—meaning to their cost we suppose—because "he had personally to attend every plant himself;" he should also have stated that there was only one show in that locality, that it is so poor it cannot afford to offer a prize for even one bunch of Grapes, and that it would not be worth any gardener's while going off the street to see if the room was not occasionally, as it at least used to be, half filled by the "famous gardener in the neighbourhood" for nothing. I am speaking from knowledge, and it will therefore be seen that your correspondent's statements are based on an exceedingly slender foundation. Then as regards washing Orchids, we all have to contend with indifferent men and indifferent wages; but I presume "SINGLE-HANDED'S" man is paid the market price of his labour, as elsewhere, and I should think there is something wrong with the superintendence which permits a man in spite of repeated warnings to break off pounds' worth of shoots from valuable plants.—ANOTHER MANY-HANDED MAN.

AUTUMN PROPAGATION OF ROSES.—Your valued correspondent Mr. W. Taylor gives some excellent directions at page 350 on striking Rose cuttings late in autumn. We cordially endorse everything he says except one point, and that is for cold districts his date for taking cuttings is thirty days too late. That is our expe-

rience, but of course there is a great difference between the midland counties of Scotland and Somersetshire, which makes all the difference. North here, too, handlights or cold frames over the cuttings are a great advantage, making "assurance doubly sure."—N. B.

LIQUID MANURE FOR PLANTS FORCED IN DARKNESS.

FORCING is expensive considering the results obtained. To obtain the greatest amount of produce of the finest quality is an object, and a worthy one, with us all, but we doubt if some of the practices yearly recommended are good. Indeed we are sure some of them are hurtful. The application of liquid manure to plants forced in darkness is one of these cases. The judicious supply of liquid manure to plants growing on soil not very rich in summer time proves that it is a valuable aid to growth. On no plants does it produce more marked effects than on Rhubarb or Seakale, but only in summer time. Then the roots take up part of the materials of which growth is made, and these materials are in the leaf, in addition to what the leaf itself obtains in the air manufactured into material from which the plants build their structure. This only goes on in the leaf under the influence of light. Liquid manure given to plants forced under conditions

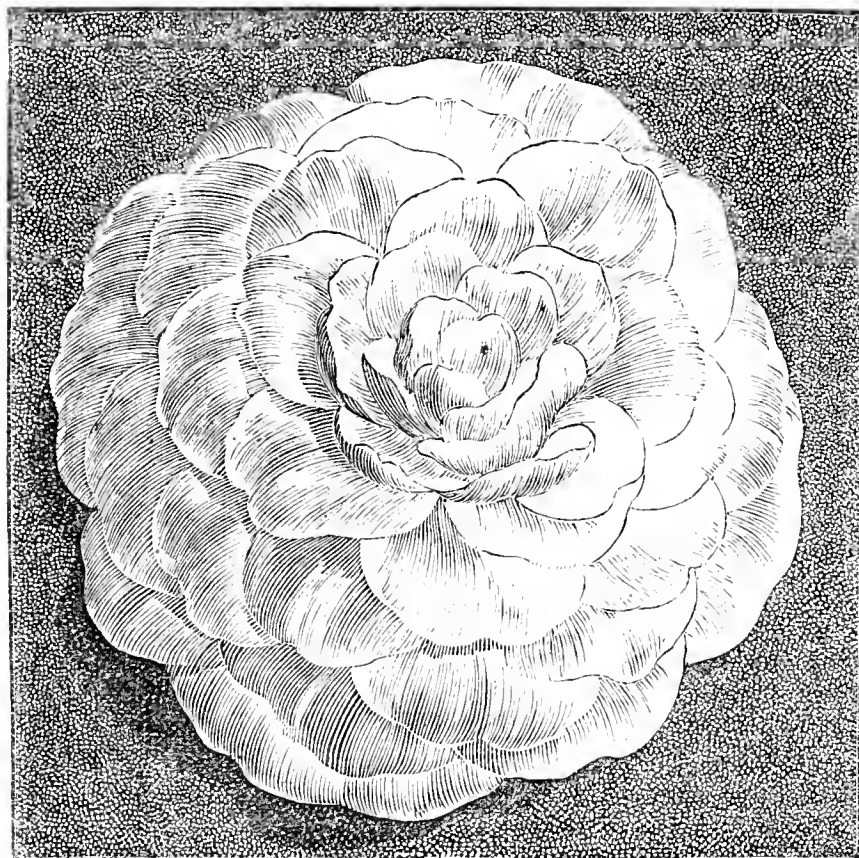


Fig. 71.—*Begonia Madame de Dumast*.

which preclude the possibility of sap being elaborated simply poisons the produce and secures no resulting good.

Liquid manure, as it is ordinarily understood, contains either ammonia, or nitrates, or both. These in water for domestic use are rightly regarded as dangerous; in what respect are they otherwise in Rhubarb? Does Seakale forced in darkness turn the nitrates or ammonia into something beneficial or even harmless? Does their application to plants under circumstances which prevent their being changed even accelerate growth or postpone exhaustion, as is often pretended? Let anyone who thinks so try it fairly against pure water and he will find he has made a mistake. The extension of the parts of plants forced in darkness must always be at the expense of the material stored up in the plants, and how to increase this store should always be the question, and not how often to apply hurtful matter to plants that cannot use it, but which thereby become no better than sewage-tainted wells. Rich soil is also objectionable and useless for the same reasons.—SINGLE-HANDED.

NEW BEGONIAS.

No plants during recent years have made such remarkable progress as Tuberous Begonias, and M. Crousse is certainly not the least successful raiser of them, as his new varieties, Blanch Jean Pierre, Madame Comesse, Madame de Dumast, Madame Leon Simon, and Mathilde Giraud, now in the hands of Mr. Cannell,

testify. It was one of these, Madame de Dumast, that we suggested on page 291 resembled a Camellia. The flower was sent by us to the engraver, and it is now represented in fig. 71. The plant that produced this flower among others was by no means strong, being in a 6-inch pot, and there is thus reason to suppose that the character of the variety will at least be maintained. The colour is blush, faintly tinted with salmon pink, the centre creamy white, and the flower is very striking.

ORCHIDS IN NOVEMBER.

THIS month brings us dreary days and cold chilly nights, with thick fogs, especially in the neighbourhood of London. It is the most difficult season with which the Orchid-grower has to contend, being the resting period, when great care has to be exercised as regards watering and firing. The many changes occurring in the outside temperature necessitate a careful look-out before damping down, taking advantage of what fine days we may have to give all the ventilation we can. It ought to be the first consideration of the grower to see to the watering and damping-down in the forenoon, by which time he will be able to predict how the day is to turn out, and so act accordingly.

The night temperature should now be kept so as not to excite growth, and should be from 60° to 65° in the East Indian house, 55° to 60° in the *Cattleya* and *Dendrobium* house, and 45° to 50° in the cool house.

In pleasing contrast to the bleak aspect out of doors the winter-blooming Orchids make a cheerful and welcome display of floral beauty well worth the trouble and care bestowed upon them. *Calanthe vestita* is now in perfection, producing as many as twenty-five to thirty flowers on a single spike, and is invaluable for cutting purposes. *C. vestita rubro-oculata* and *luteo-oculata*, and *C. Veitchii*, are also attractive, the latter with an erect stem bearing pink flowers with a white eye. These plants require no water now, and will continue a long time in flower if kept free from damp. After flowering they should be placed in a dry warm place, water being withheld from them, and should be potted in March or April, when they again start growing.

Cattleya Dowiana, undoubtedly the best *Cattleya* grown, is now in full beauty with its lovely nankeen-coloured flowers. This plant requires to be grown in a strong light in order to insure it blooming to perfection. *Cattleya exoniensis*, a garden hybrid between *C. Mossiae* and *Laelia purpurata*, with its rich purple lip, orange throat, and rosy-tinged sepals and petals, is a most desirable plant for this time of the year. *Cattleya Trianae*, now in their sheaths, promise a good display shortly. This being their resting period water must be sparingly given; sufficient only to keep the pseudo-bulbs from shrivelling will also insure an abundance of flowers for next year.

Cypripedium insigne is an old favourite, with its varieties *C. Maulei* and *C. Chantinii*, are producing their blooms. One great recommendation of these is that they succeed well in a cool house, and we have even turned them out into a cold frame with satisfactory results. *Cypripedium venustum* and *C. venustum spectabile*, with its spotted petals and fine mottled leaves, remain a long time in bloom, and should not be allowed to become too dry at the roots, though at this season the plants require to be kept drier than during their time of growth.

Dendrobium superbiens is a decided acquisition amongst winter-blooming Orchids. It thrives in a stove temperature, and produces a profusion of bloom which is invaluable during the winter months on account of the length of time it continues in beauty. *Dendrobium heterocarpum phillippinense*, with cream-coloured flowers differing somewhat from the ordinary *D. heterocarpum*, though not so fragrant, is yet valuable at this time of year. The pseudo-bulbs are sometimes seen 4 feet long, and it flowers the whole length of the bulb after the manner of *D. Pierardi*.

Laelia autumnalis is now in fine condition, as is also *Laelia autumnalis atro-rubens*, an extra dark variety, more floriferous than *L. autumnalis*, and bearing as many as eleven flowers on a spike. *Laelia anceps*, *L. albida*, and *L. Perrinii* will now be in bud and bloom, and will enliven the dull months of December and January if care be taken not to sprinkle the blossoms with water. *Laelia pumila* and *L. Dayana* are now swelling their buds, and may be expected soon to be in flower.

Oncidium crispum marginatum, better known as *O. Forbesii*, is a grand variety for this time of year, its fine spike of yellow-margined chocolate-coloured flowers rendering it exceedingly attractive.

Pleiones maculata, *P. lagenaria*, and *P. Wallichiana* are now at their best, and are extremely useful for the decoration of our

Orchid houses during the dull winter months. Many people kill these little Orchids with too much heat. We find the cool house suits them best, but when in flower we remove them to the intermediate house, as they are liable to spot in the cool house then. After they have done flowering they should be allowed to remain in their old pots for about two months, giving them very little water, and when beginning to start fresh roots they should be potted and removed to their growing quarters. Treated in this way anyone may grow them with success.

Zygopetalum Mackayii with its long spikes of Hyacinth-scented flowers is also now in perfection.—ORCHIDIST.

NOTES ON CIRCUIT.—No. 4.

AMONGST the many pleasant memories of the last summer I must reckon a short sojourn I made at Chester-le-Street in the County of Durham. I had just finished my assizes in Scotland and was on my way to the Newcastle Show, intending to pass the Sunday at the cathedral city of Durham, when, on looking at Bradshaw, I found we passed through Chester-le-Street; and it occurred to me that the Red Rose Vineries, of which the readers of the Journal have often read, were there, and that on the days when he grew *Gladiolus* Mr. Witherspoon and I had met, and so I telegraphed to him that I would spend a few hours on my way. In its own time—a very liberal calculation—the train left me there; but of the many tedious journeys I have had I think there are few which exceed that from Carlisle to Durham. Mr. Witherspoon not only met me at the station, but induced me to spend Sunday there, and held out the additional inducement of showing me Lumley Castle and Lambton Castle on Monday morning. I was very glad that I fell in with his kind wishes, for I saw much that was interesting at his own place, and was intensely delighted by my visit to the very old and very modern Castles on Monday.

Mr. Witherspoon is another example of how when the love of gardening is in a man it overleaps all boundaries, and enables him to achieve success with little theoretical knowledge of the pursuit. Mr. Witherspoon was a wheelwright, but it is evident that he was a born gardener, and the proof of it is in the results he has achieved. The piece of ground on which his garden stands was a few years ago a field, and on this he has erected his greenhouses and made himself well known in the north of England by the excellence of his culture. I have seen vineries and fruit houses, but I do not think that I have ever seen any so thoroughly utilised, and, so to say, made the most of, as these two houses of Mr. Witherspoon. In one house were the Vines covering the lean-to portion; at the back were Peaches and Nectarines, with occasionally an upright cordon Pear. There were Tomatoes along the border: Peaches, Nectarines, and Figs in pots, and all bearing a fair crop of fruit. The Vines especially were good, particularly in the second house, which was exclusively devoted to them. I should say that it is Mr. Witherspoon's object to grow for market, and that therefore he is guided in the selection of his fruit by what is most likely to pay. He is not, therefore, inclined to try new varieties which are introduced with high-sounding names and descriptions unless he finds them available for this purpose. Nor will Grapes that require very much heat answer his purpose; nor is he desirous of obtaining very large bunches, bunches of about a pound or three-quarters of a pound being the most available for market purposes. Hence the greater portion of his Vines are Black Hamburghs and Gros Colman, the latter from its size and handsome appearance being a great favourite in the north. In the second house, which is exclusively devoted to Vines, they are planted on the back wall as well as in front, and from this house last year Mr. Witherspoon cut 1400 lbs. of Grapes, and expects to cut a larger crop this year.

It must not be supposed that Mr. Witherspoon confines himself to indoor fruit. On the contrary, he has made some interesting experiments as to the Pears and Apples which will suit the less sunny skies of the north. He says that the idea that it is the freezing of the flowers which causes the loss of crops is not correct, but that more frequently the bud has been frozen in the winter, yet has sufficient vitality to flower, but, having expended its energies thus, can do no more, and the bud perishes. The more hardy sorts will break through this and make up their loss. This is much the same as we find sometimes in Roses, especially this last season. They have commenced growing, the shoot has gone a certain length; then the strength of the plant seems exhausted, the stem blackens and it dies. By these experiments he will be able to determine as to what fruits he shall grow in future—information, too, which will be useful for others besides himself.

There are few remnants of olden times which strike one more forcibly than does Lumley Castle. There are but few like it in England, Bolsover and Roby being something in the same character. It is not a ruin, and it stands there to be seen from all parts around, a strange and weird-looking building, bringing us back some seven or eight hundred years when the fighting Lumleys, whose effigies are on its walls, held revel there. Under the intelligent direction of Mr. Hall, the steward, explorations have been made and much that is interesting brought to light. As we walked through the many spacious apartments we could almost expect to see the ghosts of those who dwelt in them in former days walking through them, and to live in it when the wind was howling through its embrasures and

making all kinds of strange and unearthly noises must be a trial of courage; but as it presented no features of horticultural interest I must not dwell on it. Far different is the scene at Lambton, to which place Mr. Hall kindly drove me, and where Mr. Hunter, whose fame as a gardener, and as a Grape-grower especially, is so widely known, kindly met us. Here everything was in the perfection of order. What shall I say of the vineries? That their whole aspect was wonderful. Here were those grand examples with which he gained so many honours a few weeks after at Manchester. There were ranges of houses, conservatories, stoves, &c., and the same order and excellence reigned throughout. Out of doors it was the same save in the woods, where the havoc wrought by last winter's storms was truly deplorable; but in the garden, whether fruit, vegetable, or flower, all evidenced the presiding care of an able and intelligent gardener. The view from the upper terrace down the long walk was very beautiful, and the bedding-out was most tastefully arranged; but as I know that the beauties of Lambton have been described in the pages of the Journal I did not take any special notes. The surroundings of the Castle with the river Wear rolling beneath it are very fine, and afford many lessons for a landscape gardener. Of Roses, as in so many of those grand places, I saw but little; for them we must look in the smaller garden of the amateur who can give special care and attention to them.

Thus ended my visit to Chester-le-Street—a totally unlooked-for one when I started on my northern circuit, but of which I retain pleasant memories; and I would certainly advise anyone whose business might bring them in that direction to stop for a few hours and see both the Red Rose Vineries and Lumley Castle.—D., Deal.

LESSONS OF LIFE FOR YOUNG GARDENERS.

I HAVE read with pleasure Mr. Pettigrew's advice to young gardeners at page 273, which, in my opinion, is as good as could be given, and the rising generation of young gardeners should be proud to see that Mr. Pettigrew is one of those who remember that it is the duty of age and experience to warn and instruct youth. He says, "Except a taste for gardening be acquired in early life it will be hard work to make any advance on the high road to success." Time will prove the truth of this warning. We all know the good effect which correct opinions and sound principles established in early life have upon us as we ripen into years. Gardening differs widely from all other callings, as it appeals to such a variety of tastes. Hence it is when a young man is apprenticed to learn gardening he has a wide field of culture before him. Young men should always bear in mind that they cannot know too much about that on which their living depends. A stock of knowledge which has an almost immediate effect on their financial interests, and upon which the happiness of their future homes will principally depend, is the most practical and valuable. Neither should they be discouraged in seeking knowledge if they do not make the progress they expected. Having planted their acorn they must remember it cannot grow into an Oak at once; they must therefore cultivate the habit of endurance and perseverance, or, in other words, they "must learn to labour and to wait."

A rock on which many young gardeners are wrecked is by beginning too soon to look on their labours as a marketable commodity. This evil is a growing one; they prefer a place where they obtain a shilling or two more a week and learn little, than one where less wages are given and much more is to be learned in their business. Mr. Pettigrew justly observes that education in gardeners is uplifting in every sense, and no doubt it is one of their best aids. There is no excuse now for the rising generation not being educated, since cheap instruction is at the command of all; but it was not always so, and to those who begun gardening some few years ago with a defective education, as well as to the youth who has begun it now, we tender the same advice, and urge them not to lose a moment in self-improvement. Mr. Pettigrew truly says that young gardeners during the winter months have plenty of spare time: let them employ it wisely. In the first place, we would advise the keeping of a diary of all that is transacted about the garden, both inside and out. This diary should be written at a certain time every evening, pains being taken that it is plainly written and well spelled. This would be a very good lesson on writing for every evening. Then for ordinary instructive reading there are two books which we have found most valuable; the title of the one is Smiles' "Self-Help;" and, as its author says in the preface, the chief object of the book is to stimulate youths to apply themselves diligently to right pursuits, sparing neither labour, pains, nor self-denial in prosecuting them, and to rely upon their own efforts in life rather than depend upon the help or patronage of others. The title of the other book is Cobbett's "Advice to Young Men;" and then there is also Cobbett's "English Grammar," which is a famous self-instructor. We are glad to see Mr. Pettigrew is of our opinion concerning these two works of Cobbett's.

The reading of works on gardening is very essential, and should be particularly attended to by every young gardener. As standard works we can recommend Thompson's "Gardener's Assistant" and Anderson's "Practical Gardener;" but we give preference to the reading of weekly gardening papers. My employers have paid for two papers every week now for nearly ten years for me, and I take out one on my own account. Of the three I may, perhaps, be allowed to say I give preference to the *Journal of Horticulture* either for young gardeners or old. The matter which it contains is instructive and reliable, and bears testimony to the abilities of its staff of contributors, composed as they are of the leading practical gardeners of the day. Young gardeners should also attend to the study of history and geography; and as they spend years of their youthful prime in bothies, exposed to many allurements, we wish to caution them against the reading of novels. No doubt there is the old adage that "reading makes a learned man, and writing makes a correct man," but in our opinion reading novels never added anything to any man's learning. Many of them are so alluring that it requires great steadfastness to resist their temptation. Much trashy reading corrupts the mind of the young, and is too often the promoter of alternate follies taking the sway, and when such is the case with young gardeners they will rue it. We have said, Neglect novel reading; we say also, Neglect dominoes, draughts, and card-playing, and, above all, neglect the beerhouse, and things will go well with you. In the first place you will be more respected by the gardener whom you are under, you will also be more respected by those who are above you in every station of life. The crown and glory of life is character. Smiles says it is the noblest possession of a man, constituting a rank in itself; it exercises a greater power than wealth, and secures all the honour without the jealousies of fame; it carries with it an influence which always tells, for it is the result of proved honour, rectitude, and consistency—qualities which, perhaps more than any other, command the general respect of mankind.—H. ELLIOTT.

REVIEW OF BOOK.

Handy Book of Fruit Culture Under Glass. By DAVID THOMSON. Second Edition. William Blackwood & Sons, Edinburgh and London.

MR. D. THOMSON'S excellent manual on fruit culture is so well known and so generally appreciated by practical gardeners, that lengthy reference to it is quite unnecessary. The fact that a second edition has been called for is a sufficient indication of its popularity. The various chapters upon the Pine Apple, Vine, Peach, Nectarine, Fig, Melon, Strawberry, and Cucumber have been revised and some minor additions have been made, but in general there have been few alterations, for few were needed. In addition to the carefully written and useful calendar of monthly operations requisite in fruit houses, the chapter upon heating by hot water which appeared in the first edition is repeated. This is of such a thoroughly useful character, and we have had so many inquiries on the subject lately, that we give the greater portion of it in the author's words.

OBSERVATIONS ON HEATING BY HOT WATER.

"Notwithstanding all the elaborate essays that have from time to time appeared in the horticultural press on heating hothouses with hot water, I have the best reasons for believing that many whom the matter intimately concerns have still but very vague and erroneous ideas regarding the principles upon which the proper adjustment of hot-water boilers and pipes depend.

"It is my belief that, if those who have to do with fixing pipes and boilers were to make themselves acquainted with the effects of heat and the power of gravitation on water, it would be next to impossible to commit the blunders, and resort to the unnecessary and expensive precautionary measures, one so often meets with and has to deal with. It is no part of my intention to pretend to deal with that imponderable and powerful agent called by men of science caloric, but which I shall call heat—hypothetically regarded as a subtle fluid, the particles of which are to each other repellent, but attractive to all substances, though in various degrees. But the effect of heat upon water, an element composed of minute and distinct particles that are supposed not to have the quality or power of transmitting heat the one to the other, as in the case of solid bodies, is one of the matters concerning which some knowledge is indispensable in the case of all who have anything to do with heating by means of heated water circulating in pipes.

"The particles of which water consists, it need scarcely be said, have a capacity for heat from different sources, but most manifestly so to us in this case from combustion in the fireplace. Now the expansion of bodies is one of the most universal effects of increasing their heat. This expansion takes place to a greater degree in some bodies than in others. Liquids expand much more by the same increase of heat than solid bodies, and air more than either. With the expansion of the individual particles of water their specific gravity becomes less;

in other words, they become lighter in proportion to their size. Here lies the whole secret of hot-water circulation in pipes and boilers, and the well-known law which should regulate their relative positions. The heated particles of water bound upwards, and, as 'Nature abhors a vacuum,' their place is taken up by a rush of colder and heavier particles. It is of very little practical use to cavil about the question as to whether heat or the greater specific gravity of the cold water which jostles up the warmer and lighter plays the greater part in sending up and away the stream of hot water. Both have a hand in it no doubt. This influence of heat upon water can be very manifestly shown by filling a tumbler with cold water, and mixing with it some coloured particles of matter, and then immersing the tumbler in a vessel filled with hot water. It will at once be seen, by the motion of the particles of coloured matter, that at the sides of the tumbler there is an upward current of heated and in the centre a downward current of colder water. This goes on until the whole is of the same temperature. A glass of warm water immersed in cold has the current reversed in its course—upwards in the centre, and downwards at the sides, where the water is being cooled. Here is the whole secret of the motion and course of heated water in the boiler and pipes of a properly adjusted heating apparatus. And one would suppose that the simple understanding of this would prevent any from making mistakes. Yet, strange to say, some who undertake hothouse-heating are entirely ignorant of these simple and well-established facts.

"Wherever the heat generated by combustion in the furnace acts most directly and powerfully, from that surface bound upwards the particles of water, and to that spot, simultaneously, drop the colder particles of water, to be in their turn sent bounding on their errand of warmth. Anything that attempts to contravene this law of gravitation will be rebelled against by the elements concerned with unmistakable violence and persistency. Clearly, then, the outlet for the water, thus lightened and charged with its freight of heat, should be at the highest part of the boiler; and that by which the cold water is to run in and down, to take its place, should be at the lowest point. Boiler inventors and manufacturers recognise this important part of the matter, and always place the flow pipe at the highest, and the return pipe at the lowest point of boilers.

"Great importance has been attached by many to the necessity, or at least the great desirability, of having the boiler fixed at a very much lower level than the pipes, and also to the necessity of laying all the flow pipes on the incline the whole length of the house to be heated. The importance, too, of having the return pipes on a considerable decline has, in my opinion, been very much over-estimated. It is entirely unnecessary to form deep damp stokeholes in order to sink the boiler to a level much below the main body of the pipes, as is so very frequently met with. And as to having the pipes running at an incline after starting from so high a level, I consider it entirely unnecessary. Indeed, one of the most efficient heating apparatus I ever superintended started from about a foot above the level of the boiler, and ran down a gradual decline into the boiler. Immediately the water enters a hothouse it begins to part with the heat absorbed from the fire, gets colder, increases in specific gravity as it speeds in its way back to the boiler again, and a downhill career is most natural to it as soon as it leaves the highest point of action, where its heat is the greatest. Practically I have never found much difference when the pipes went the whole length of the house on an incline or on a dead level all the way round till it came near to, and dropped into, the return-opening of the boiler. Indeed there is little fear of a good circulation provided the pipes do not at any point descend and rise suddenly, and most especially that at any point they do not dip below the level of the return-opening into the boiler. I have had the working of apparatus where pipes, descending perpendicularly, crossed under a walk and rose again perpendicularly to heat another range of 80 feet of glass; but at none of the points were the pipes lower than 2 feet above the level of the return-opening into the boiler. This undesirable arrangement worked pretty well until hard firing became necessary, then the water was thrown out in plunges at the supply cistern. Such an arrangement should always be avoided.

"There is another error frequently committed in arranging the route of the water. Suppose, for instance, a boiler fixed at one end of a house of, say, 80 or 100 feet long, as part of the work allotted to it. As in the case of span-roofed houses, it may be desirable to have three or four rows of pipes all round the house. Now it is not uncommon to find two rows called the flow-pipes taken all round the house to near the boiler, and there to start back with other two on the same route into the return-opening of the boiler. This is giving the water a long journey, and the return-pipes will be found comparatively cold by the time the water gets to the boiler. Now, if instead of this the whole four pipes be connected with the flow-pipe, and go round the front and end of the house nearly on a level, and start along the back down a decline to the boiler, and there plunge down the drop-pipe into the return-opening of the boiler, it will be found that while any portion of the pipes may not be quite so hot as the beginning of the two flow-pipes in the former case, there will not be any portion of them nearly so cold as the last portion of the return. I do not say that this is the best way to conduct the water; but I have proved from experience that the arrangement indicated is the better of the two named, when the pipes are, from any necessary conditions, laid all round the house in this way.

"The supply of waste water to the boiler and pipes is often placed anywhere that looks most convenient; but the proper place is to attach the supply-cistern to the return-pipe somewhere near the boiler. Fixed to the flow, the water will be frequently plunged out by the upward tendency of the hottest water. It is also very undesirable to leave the supply-cistern to be kept full either by pouring in water from a pot or by turning a tap, which is often neglected. There should always be a cistern supplied by the action of a ball-cock, and then the anxiety connected with the neglect of supply does not exist."



KITCHEN GARDEN.

A FIRST sowing of Peas can be made on a south border, and to prevent the ravages of mice damp the seed and coat it with red lead before sowing, or a sprinkling of paraffin is even more effectual. The seeds should be sown more thickly at this season than in the spring, covering them lightly with soil and afterwards with sifted ashes an inch thick. William I. and First and Best are suitable varieties. Broad Beans may also be sown on a sheltered border and treated similarly to the Peas. Early Mazagan is the hardier, but in most winters Early Longpod survives, and the pods are much larger. Globe Artichokes, if cleaned and exposed as before advised, will be somewhat hardened, and should be protected before severe frost occurs. The soil around the crowns must be removed to the depth of 4 inches, giving a good dusting of quicklime, and surrounding the crowns with ashes in lieu of the soil removed. The spaces between the plants and rows may be covered with litter 6 inches deep. Cut and remove decayed Asparagus stems, and apply a dressing of manure to the beds, avoiding, however, raising them too high. Clear away the decayed leaves from Rhubarb, remove the loose soil from around the crowns, replacing with some well-decomposed manure, covering the crowns and manure with soil from between the rows, and in the spaces between the plants give a good dressing of manure.

Seakale to be forced on the ground should have the decayed leaves removed, be given a light sprinkling of salt or quicklime as a deterrent of slugs, and some ashes placed around and over the crowns. Continue in favourable weather to earth-up Celery, protecting in severe weather that fit for use. Broccoli which has become leggy should be heeled or laid in, so that the stems of the plants will be well covered with soil. Plants grown on poor or firm soil have made short stems and sturdy growth, and will not need this treatment. Look out for slugs in recent plantations of Cabbage and Lettuce, dusting them with lime or soot. Applying manure and digging or trenching vacant ground should be proceeded with when the weather is favourable, as the beneficial results accruing from fully exposing the soil to the operation of the weather cannot be over-estimated, especially where the soil is of a stiff adhesive nature. Throw up such soils in the roughest manner possible and in ridges in order that pulverisation may be thorough; and in light soils where this will not be necessary the exposure of the soil will be beneficial. Remove all decayed leaves from Brussels Sprouts and winter vegetables generally, as such only harbour vermin.

FRUIT HOUSES.

Peaches and Nectarines.—Where it is intended to have fruit of these ripe early in May with certainty, the house containing the trees for that purpose should now be closed, but no fire heat except to exclude frost need be employed until next month, and the house should be freely ventilated at and above 50°. A thorough soaking of water at a temperature of 70° to 75° must be given the inside border, and the trees damped in the early part of fine days and early on fine afternoons; but when the weather is dull there will be sufficient moisture without resorting to syringing, and it is important that the buds and wood become dry before night. The outside border should be covered with a good layer of leaves, litter, or dry fern, but not so thick as to cause fermentation, and if there be shutters or

tarpaulin to throw off heavy rains or snow it will be an advantage. Oak or Beech leaves with a third or fourth of stable litter being at command may be placed in a heap and turned over once or twice, for making up a bed inside the house the beginning of next month.

As the trees in the succession houses become divested of their leaves the lights may be removed, as no harm will result when the wood is thoroughly ripened. Where the lights are not removable the cleansing of the house and trees may be proceeded with, unloosening the branches from the trellis, and securing them to it again after the house has been cleansed and the trees pruned and dressed with an insecticide. The pruning must be confined to removing such shoots as escaped notice at the pruning or thinning after the fruit was gathered. A space of 12 to 15 inches or more should be allowed between the young wood. Remove any loose surface soil, and supply strong turfy loam with a little bonemeal and wood ashes intermixed, making it firm, and giving a good watering. Have the house as cool as possible. Late trees of which the wood does not ripen well should have the roots wholly or partially lifted, commencing to remove the soil at the point most distant from the trees, and preserving the roots as intact as possible, especially the fibres near the stems, and after rectifying the drainage place the roots in fresh compost. If only partial lifting is resorted to, the roots should be raised, bringing them near the surface and not covering them deeper than from 4 to 6 inches. Give a good watering, keeping the house rather close for a few days, and, ventilation being then ample, the foliage will ripen freely.

Figs.—The first batch of Figs for early forcing in pots should now be dressed with an insecticide to destroy the pests which infest the trees in a more advanced stage. In employing the insecticide care must be taken not to rub off the young fruit. Very little pruning will be necessary if the plants have been regularly pinched-in during growth, but if the shoots are too crowded they may be thinned, and any elongated shoots cut back. A bed of leaves is a great aid to successful early forcing, and to secure them in a fit state for the purpose they should now be thrown into a heap with a fourth of stable litter, turning them over when warm and damping if necessary. Equally important for the trees is a free exposure to light. The pots may be placed on pillars of open brickwork to prevent their settling with the fermenting materials, and to keep the growths near the glass. The house can now be prepared, and the pots placed in position by the end of the month, the fermenting materials being then placed round the pots, but not to raise the temperature above 70°. Pruning planted-out trees should be proceeded with, but in the case of trees which have the roots restricted to small borders very little pruning will be needed, providing attention was given during the season of growth to thinning and stopping the shoots. Trees not having the roots so restricted, and the object being to secure a supply of young growths over the whole surface of a large trellis, will require pruning somewhat hard at the upper part. Shoots which have attained the limit of the trellis should be shortened back to the part at which the succeeding shoots start. All elongated spurs must be removed, reserving some of those which are short-jointed and fruitful.

Cucumbers.—The temperature outside and the diminution of the duration of light will necessitate a slight decrease of temperature, which may be kept at 65° at night, falling to 60° on cold mornings, but 2° or 3° warmer when the weather is mild, 70° being the minimum by day. Ventilate when the air is mild. Avoid sudden fluctuations of temperature, paying close and careful attention to stopping, thinning, and regulating the growths. Be careful to apply water to the roots of about the same temperature as the house. The plants for winter-fruiting should be allowed to extend up the trellis before stopping, afterwards training the shoots to the right and left of the main stem. Continue to add a little fresh soil as fast as the roots cover the surface of the bed, removing all tendrils and male blossoms as they appear. Fumigate moderately upon the first appearance of aphides, and promptly apply flowers of sulphur for destroying mildew, quicklime being the best antidote for canker.

PLANT HOUSES.

Stove.—Plants in a state of rest should not be subjected to a low temperature, for though many plants will bear it without showing

immediate bad results, yet it causes the loss of the roots, especially if the soil be moist; in fact stove-flowering plants of such kinds as *Ixoras*, *Dipladenias*, and *Allamandas* are often injured by resting in too low a temperature. Rest is best effected by keeping the roots moderately dry, and the atmosphere correspondingly so, reducing the temperature to 60° to 65° at night, with an advance by day in bright weather to 75°. Tropical plants do not need cold to induce rest, but dryness to harden the growth. Some of the strongest plants of *Poinsettia* should be placed in the stove to bring them into flower; also *Euphorbia jaequiniaeflora*, keeping the latter near the glass, as the colour is then not only brighter but the sprays last much longer in a cut state.

Orchids.—*Acridas*, *Phalaenopses*, *Saceolabiums*, *Vandas*, and similar kinds will, owing to the gradual lowering of the temperature, be in a partial state of rest, and will only need sufficient water at the roots to keep the moss damp; if allowed to become too dry the lower leaves are apt to shrivel and fall. Prevent premature growth by keeping the house comparatively cool and dry; moisture, however, must not be neglected, a little water being poured over the pathways when the temperature is rising in the morning, completing all watering and syringing by noon, so as to have the house dry before the temperature lowers. Air should be admitted by the bottom ventilators, only a little being necessary to keep the temperature from rising too high. Imported plants not having completed their growth must be kept in a moist atmosphere and watered, and plants growing on blocks must be examined and watered as they require it. Plants of *Dendrobium nobile* that have completed their growth and have the buds swelling may be placed in the East India house, and they will be in flower by the new year. *Cattleyas* require a long rest, the pseudo-bulbs not being allowed to shrivel, but very little water will keep them plump. *C. Warscewiczii* now starting will make a fine display during the winter. *Laelia purpurata* which has not completed its growth should have a good position at the warmest end of the house. *Calanthe vestita* coming into flower must have very little water, and to prevent the buds falling keep the plants fully exposed in the driest part of the house. *Cypripediums* require water liberally at all seasons. Many *Odontoglossums* and *Masdevallias* are still growing, and must be kept moist at the roots.

THE BEE-KEEPER.

BEST TIME OF COMMENCING BEE-KEEPING.

IN districts where bees are extensively kept bee-keeping may be commenced at any time of the year, for in such districts there is no difficulty in finding people ready to sell part of their stock. In the month of September, generally speaking, bee-farmers take their honey and finish their harvest. In doing this their hives are lessened in number about one-half. Hives at this season may be readily obtained at low rates, say a trifle more than the value of their honey. At the time of harvest clever bee-farmers mark the hives most suitable for maintaining the number usually kept, and take the honey from the rest, carefully preserving the bees and young queens of the honey hives to strengthen and perfect those kept for stock. If any of the bees require feeding, syrup is given them in September. This is simply the routine work of well-managed apiaries. Hives so prepared are valuable and can be confidently trusted, and, therefore, are worth more than their honey value; indeed, their value increases as their honey is eaten. As autumn and winter pass away and spring appears stocks of bees rise in value, and continue rising till the time of swarming. Buyers then want swarms. In our opinion the best time to commence bee-keeping is during the dull months of autumn and winter—say any time between September and March inclusive. During November, December, and January hives may be safely removed from one garden to another without much risk of losing bees by the change. In February bees begin to fly farther from home, and therefore there is some risk in changing hives in February, March, and September.

From March the September bees know the pasturage and country well for a mile and a half in all directions around their hives. Swarms only on being hived can be safely removed a short distance at this busy season. As we generally advise those who consult us as to how bee-keeping should be commenced to pur-

chase hives near home if they can find them, we would like all to remember that the best time to buy hives near home is in the dull months of winter. In purchasing hives at a distance from home and having them sent there is no risk of loss of bees, but the expense of carriage may be a consideration. In the autumn and winter months there is little if any risk at all in losing bees by suffocation in being removed from distant places. At this time of the year hives can be removed from one end of the land to the other without loss of bees or breakage of combs. To those who have resolved to have bees in their gardens next year, let me advise them to look around them for hives at their earliest convenience. Those who do not know the difference between a good and a bad one, a strong and a weak one, should apply to a respectable bee-keeper for a stock or two, or instruct a trustworthy agent to do the work of buying for them. Many ladies and gentlemen have failed at the commencement of bee-keeping by having worthless hives, and some have failed by some mishap with a good hive. When failure happens in the first year of commencement it is a great misfortune and disappointment. To prevent the possibility of misfortune to beginners we have advised those able to buy two hives to begin with them; and we believe that those who followed the advice given have not regretted doing so. If any unexpected misfortune fall on one hive, the other hive may produce results so satisfactory as to make the owner fear no failure in the future. After one season of success bee-keepers seldom dream of failures in the future.

As to the price of hives we cannot speak with confidence, for in different localities the prices vary so much. In bad seasons hives are lower in price than in good seasons; and this is easily understood, for bees in bad seasons are dear at any price, and in good seasons good hives are cheap at any price less than £3 each. In Ireland and in some counties in England where bee-keeping is not well understood, hives are small and low-priced—from 10s. to 20s. each. Stock hives range from 30s. to 40s. each. Swarms in May and June range in price between 10s. to 30s. each according to locality and size. We have always thought it the better way to make a commencement with a stock hive, so that there is a chance of having a return from it the first year or a multiplication of stock.—A. PETTIGREW, *Bowdon*.

LIGURIANISING.

I HAVE been experimenting of late with Ligurian bees. Having lost an English queen through old age, and as I intended to replace her with an imported Ligurian queen, I wanted to make sure she was not in the hive, so I gave them some Ligurian eggs, and the queenless bees at once built queen cells and sealed up three queen cells in a short time. This having removed my doubts, I cut out two of the queen cells and placed them in a small bar-frame hive (one that a queen came in from Italy) with over one hundred bees. One of the cells did not come to maturity, and the other queen was born without a wing, so that if she had been needed or born in another hive she would have been no use, as she could not have been mated, not being able to fly. I destroyed her, and gave the same bees a piece of comb containing Ligurian eggs on the 12th ult., and on the 17th they had one queen cell built and sealed, and on this morning, October 25th, the queen is hatched. This is only about twelve clear days from the bees received the eggs. But it is only fair to state that it was all done in a warm glass house.

I want to know if I can make my queen a drone-breeder in spring by supplying her with as much brood as will keep up the numbers? I have already three Ligurian queens, and by raising a number of young queens early in the season this plan would produce early drones to fertilise them. Perhaps some of your readers have tried it successfully. If it is practicable, any number of queens could be raised in these little boxes in spring and given to black colonies, and then be fertilised by the drone-breeder's progeny, and so ligurianise an apiary without loss of time to the bees.—COMBER.

BEE SHOWS AND BEES IN IRELAND.

I QUITE agree with Mr. Edwards that Mr. Pettigrew's remarks on the bee tent ought not to pass unnoticed, and am glad to see the article from "COMBER" on the subject, as, far from the manipulations in the tent frightening spectators, I know of instances where persons previously afraid to touch bees have, from the instruction received at the recent show near Dublin, driven many hives successfully unaided and without gloves. I think this is sufficient proof that the shows tend to the advancement of bee-keeping.

I fear the wintering of stocks this year will be bad, as they

have dwindled remarkably since 15th August, when breeding ceased here. The season here has been very bad, many cottagers getting no profit at all this year, except in favoured places, where skeps sometimes reached 50 lbs. gross. My bees were working at the Ivy during the fine mild weather last week as if it were May. I fear this will make them dwindle still more.—SUBSCRIBER.



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (Anxious).—The best work on the planting and management of forest trees with which we are acquainted is Brown's "Forester," published by Messrs. Blackwood & Sons Edinburgh and London. (*A Learner*).—You will find the "Orchid Growers' Manual" a very reliable work. It is published by Mr. B. S. Williams, the Victoria and Paradise Nurseries, Upper Holloway, price 7s. 6d.; post free, 8s.

Fruits for North Wall (F).—You neither name the district in which you reside nor the height of the wall. Besides Gooseberries and Currants Morello Cherries thrive well on a north aspect. In many places Plums also succeed well, Victoria being very fruitful, and in some localities early Pears produce good crops in such positions as those to which you allude, but we have no means of judging whether they would be likely to succeed in your garden.

Vines in Pots (Idem).—The Vines of which you send us a sample are of no use for fruiting in pots. You had better cut them down as you propose, and also raise others from eyes. No one can say which would be the better, as so much depends on the treatment they receive. Vines for fruiting in pots cannot be successfully grown in a shaded position.

"The Herefordshire Pomona" (J. L. C.).—Many excellent coloured plates of Apples appear in this fine work, which is published by David Bogue, 3, St. Martin's Place, Trafalgar Square.

Abutilons (F. W.).—If you have convenience for wintering the seedlings we should not cut them down, and in all probability they will flower early in the spring, and afford you an opportunity of testing their merits. If you cut them down you will have to wait much longer before you can determine the value of the varieties.

Washing Minton's Tiles (Flora).—We cannot suggest anything better for drying the moisture from the floor of your conservatory than a good woollen mop; the work would be done much more economically than with a sponge, and we think quite as effectively.

Hyacinths in Water (Two Inquirers).—You will find reliable instructions on this method of growing Hyacinths on page 248 of No. 64, the issue of September 15th of the present volume. If the number has been mislaid others can be had from the publisher post free for 3½d. each.

Roses in Pots (K. A.).—You had better let the plants have all the air possible, but it would be advisable to shelter them from heavy rains to prevent the soil being saturated, as this would prove very injurious to newly potted plants. We should also place on the lights on the occurrence of frost. You may prune them any time after the leaves have fallen. When you cover them in wet mild weather prop up the lights as fully as possible.

Vines not Bearing (A Constant Reader).—There are no signs of the phylloxera on the roots you have sent, but they are very fragmentary. In all probability unsuitable soil is the cause of the injury. You had better remove the whole, or the greater part of it, providing good drainage, raising such roots as need it, and placing them in fresh compost. All the unhealthy portions should be cut off, and if you place a good proportion of wood ashes in the soil in contact with the roots the production of fresh fibres will be accelerated. Had you sent a portion of wood as well as roots we should have been better able to judge of the condition of the Vines and the probability of their restoration. The roots should be covered 4 or 5 inches deep with soil, and the border further mulched with manure. The work should be done at once.

Rain Gauge and Rainfall (A. T. Liverpool I.).—There are many different rain gauges, and we have not had experience with one of the kind you mention, nor are we able to furnish you with the rainfall of your district during the time you name. If you send a stamped directed envelope to G. J. Symons, Esq., F.R.S., Camden Square, London, he would probably oblige you with the information you need.

Exhibiting Grapes (J. A.).—If the schedule expresses that "distinct species" must be staged, and there is no qualifying clause in favour of black and white Grapes being allowed, then no one can stage more than one dish of Grapes in the collection without being disqualified. If the conditions express distinct dishes or distinct varieties, then black and white Grapes would be admissible, as they usually are in collections of fruit. You had better ascertain the intentions of the committee; framers of schedules often employ terms of which they do not appreciate their true significance.

Destroying Mildew on Chrysanthemums (S. H.).—A simple remedy that has frequently been recommended in these columns is to dust the

affected parts with sulphur immediately the mildew appears. Some cultivators syringe the plants with a solution of softsoap or Gishurst compound at a strength of 2 ozs. to a gallon of water, and apply the sulphur to the foliage when it is wet; it may remain on for a day or two, or until the mildew is destroyed. Remedies of all kinds are often, however, rendered ineffective through their application having been too long deferred.

Grapes Decayed (J. Turner).—It is impossible for anyone to tell why the Grapes have decayed without being acquainted with the condition of the Vines and border, the weight of the crop, and the treatment that has been given. We can only reply to you as we replied to a correspondent last week. If you will state how the border was made and drained, with the nature of the compost, and also send fair examples of wood and foliage, we will give the subject our best attention.

Repotting Dendrobium nobile (A Subscriber).—The best time for repotting these Orchids is after flowering, as growth then commences. Those that you wish to hasten into flower may be now placed in a warmer house, retaining the others in their cool quarters until they are wanted. One cause of the growth starting prematurely is keeping the compost too wet, and this should be carefully avoided. *D. chrysanthum* may be grown either in a pot or basket, but the latter is preferred by many growers.

Various (J. P.).—We do not know any work that would precisely answer your requirements. Perhaps the following hints will be of service to you. The *Brunsvigia* and *Hæmanthus* may be grown in a greenhouse or similarly cool structure, and require a compost of light turfy loam and sand, the pots being well drained. The *Sauromatum* succeeds best in a warmer structure than the above, and needs a compost of loam and sand. The Orchids and *Ophrys* may be either grown in a cool house or frame, and must be provided with well-drained pots and a compost of light loam and peat in equal parts, with a good proportion of sand.

Importing Wild Plants (W. E. B.).—Considerable difficulty is experienced in importing wild plants in a live state, and few, except bulbs or those with creeping roots, thrive satisfactorily for any length of time. This especially applies to alpine. They should, when the experiment is tried, be carefully lifted, injuring the roots as little as possible, surround these with damp moss, and pack closely in tin boxes. Where seeds can be obtained it is generally the best mode of introducing such plants. The lists to which you refer are frequently published in the leading daily papers; but we do not consider such lists very reliable, as the prices are always fluctuating according to the daily supply of produce.

Peeling Vines (Gloucestershire Subscriber).—We do not approve of peeling and scraping Vine rods, and can only conceive the practice defensible if the Vines were infested with insects, and even then we should try and destroy them before having recourse to a practice which as sometimes carried out is injurious. If you dissolve about 2 ozs. of Gishurst compound or softsoap in a gallon of water, and thoroughly wash the rods with the solution when it is as hot as the hand can be borne in it for a moment or two, not many insects will escape if the work is well done with aid of an old spoke brush. It is as necessary to cleanse the house as to wash the Vines where insects abound.

Trees not Fruitful (Idem).—The roots of the Elm trees no doubt penetrate the Peach border, and more or less impoverish it, and cropping a Peach border close to the trees is not good practice; still, with care early crops may be grown on such a border, as may be seen in hundreds of gardens, but the work needs to be carried out with judgment and care. If fruit trees grow luxuriantly root-pruning is advantageous, not otherwise. Drainage is only necessary where the subsoil is wet. The condition of your Pears either indicates that the varieties are not good or the trees need more support, such as removing a little of the surface soil from the roots, and giving a dressing of manure. By the term "east wall" we presume you mean the east aspect of a wall. Plums and Pears would grow there and bear fruit, but with greater certainty if the blossoms were protected from frost in spring. We cannot usefully name any varieties, as you do not state how many trees you require, nor mention the length of the wall.

Sowing Fern Spores (J. C.).—The spores of some species of Ferns retain their vitality for a considerable period, and instances have been recorded of spores germinating that have been taken from dried specimens preserved for years in an herbarium. As a rule, however, those which germinate quickly, such as the *Gymnogrammas*, also retain their vitality for a comparatively short period, so that it is safer to sow the spores as soon as they are ready than to wait to a more favourable season. Prepare shallow pots or pans, three parts filling them with clean rough potsherds, over these place some finer portions, and fill up with light soil and sand. The soil should be baked or exposed to the action of fire sufficiently to destroy the spores of any coarse-growing Ferns, the germs of fungi, or any other of the lower order of vegetation, the rapid increase of which if allowed to remain would speedily destroy any of the more delicate Ferns in a young state. Thoroughly moisten the soil, and stand the pot or pan in a saucer that should be kept filled with water, which, rising by capillary attraction, will obviate the necessity of frequently applying water to the soil after the spores are sown. When it is observed that the clusters of spore cases on the fronds are approaching maturity the fronds may be removed carefully and laid upon a sheet of paper in a dry position, where the spore cases will burst and liberate the extremely minute spores, which can then be scattered on the surface of the prepared soil. Some prefer placing the fertile portions of the fronds upon the soil at once; but in either case care must be exercised to cut the fronds before the spore cases are fully mature, or you may lose the spores, and after carefully sowing the empty cases and waiting for a month or two find that all your labour has been in vain. Cover the pots or pans with a piece of glass to prevent evaporation, and place them in a shaded close house or pit where an intermediate temperature is maintained, and if not allowed to fall below 50° there are few of the free-growing Ferns from either tropical or temperate regions that will not germinate satisfactorily.

Names of Fruits.—We have many times notified that only six varieties of fruits can be named at once; still large packages reach us, the contents of which cannot be examined. Some fruits are not named because the sender's name does not accompany them, and we cannot always determine to whom the respective parcels belong, even by the aid of letters received by post. Pears, we have previously intimated, ought to be ripe or approaching ripeness when sent, or a number of them cannot be identified. All packages must be carriage paid; unpaid parcels are sent every week that are not taken in. The fee for naming fruit to non-subscribers is 5s. It is important that these conditions be attended to for preventing disappointment. (*Worcestershire Vicar*).—We are sorry we cannot aid you in determining the name of the Pear; it had not been packed firmly, and by shaking to and fro arrived here a shapeless mass. (S).—Your Pear is Dunmore. (*J. Digby*).—1, Dumelow's Seedling; 2, Golden Reinette; 3, Cox's Orange Pippin; 4, Court Pendu Plat. (*A. W.*).—1, Beurré de Capiaumont;

2, Beurré Diel; 3, Zephirin Gregoire; 4, Ne Plus Meuris. (*J. D. S.*).—2, Margil; 3, New Northern Greening; 5, Alfriston. We have received other parcels of fruit that will be referred to in a future issue.

Names of Plants (*J. H.*).—1, *Lastrea glabella*; 2, *Lastrea quadrangularis*; 3, *Polystichum species*; 4, *Doodia blechnoides*; 5, *Asplenium obtusilobum*; 6, *Adiantum tetraphyllum*.

COVENT GARDEN MARKET.—NOVEMBER 9.

BUSINESS remains the same with an improved demand for Grapes. Home-grown Apples still reach us in good supply to the almost total exclusion of foreign goods. Kent Cobs easier.

FRUIT.											
		s. d.		s. d.				s. d.		s. d.	
Apples.....	½ sieve	1	0	4	6	Lemons.....	½ case	18	0	to 30	0
Apricots.....	doz.	0	0	0	0	Melons.....	each	1	0	2	0
Cherries.....	½ lb.	0	0	0	0	Nectarines....	dozen	0	0	0	0
Chestnuts.....	bushel	16	0	0	0	Oranges.....	½ 100	0	0	0	0
Currants, Black..	½ sieve	0	0	0	0	Peaches.....	dozen	6	0	0	0
" Red....	½ sieve	0	0	0	0	Pears, kitchen..	dozen	1	0	1	6
Figs.....	dozen	0	0	0	6	dessert.....	dozen	1	0	2	0
Filberts.....	½ lb.	0	0	0	9	Pine Apples....	½ lb.	3	0	5	0
Cobs.....	½ lb.	0	0	0	9	Strawberries....	per lb.	0	0	0	0
Gooseberries....	½ sieve	0	0	0	0	Walnuts.....	bushel	7	0	8	0
Grapes.....	½ lb.	0	6	4	0						

VEGETABLES.											
		s.	d.	s. d.				s.	d.	s.	d.
Artichokes.....	dozen	2	0	to 4	0	Mushrooms	punnet	1	0	to 1	6
Asparagus.....	bundle	0	0	0	0	Mustard & Cress ..	punnet	0	2	0	3
Beans, Kidney	½ lb.	0	3	0	6	Onions	bushel	3	6	5	6
Beet, Red.....	dozen	1	0	2	0	pickling.....	quart	0	0	0	5
Broccoli.....	bundle	0	9	1	6	Parsley..... doz.	bunches	3	0	4	0
Brussels Sprouts..	½ sieve	2	0	2	6	Parsnips.....	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Potatoes.....	bushel	2	6	4	0
Carrots.....	bunch	0	4	0	6	Kidney.....	bushel	3	0	4	6
Capicums.....	½ 100	1	6	2	0	Radishes.... doz.	bunches	1	6	2	0
Cauliflowers.....	dozen	0	0	3	6	Rhubarb.....	bundle	0	4	0	6
Celery.....	bundle	1	6	2	0	Salsafy.....	bundle	1	0	0	0
Coleworts..... doz.	bunches	2	0	4	0	Scorzoneria.....	bundle	1	6	0	0
Cucumbers.....	each	0	4	0	6	Seakale.....	basket	2	0	2	3
Endive.....	dozen	1	0	2	0	Shallots.....	½ lb.	0	3	0	0
Fennel.....	bunch	0	3	0	0	Spinach.....	bushel	3	0	0	0
Garlic.....	½ lb.	0	6	0	0	Tomatoes.....	½ lb.	0	8	0	9
Herbs.....	bunch	0	2	0	0	Turnips.....	bunch	0	4	0	0
Leeks.....	bunch	0	3	0	4	Vegetable Marrows	each	0	0	0	1



POULTRY AND PIGEON CHRONICLE.

STABLE ACCOMMODATION FOR HORSES.

ALTHOUGH this subject is not strictly connected with the home farm, yet, as on many gentlemen's estates the food and litter required for the nag horses is often derived from the farm, it is our intention to relate some experience in connection with the erection of stables and their internal accommodation necessary for horses, such as hunters, hacks, racers, and also for harness work; in fact, what we have to state will apply equally to all the horses kept upon any gentlemen's or noblemen's estate.

Health and longevity are matters of the greatest consequence, and they cannot be secured without judicious stable accommodation and management of the horses. We will consider first the construction and position of stables best calculated to contribute to those desirable objects. We prefer a high and dry soil upon which to erect the buildings, with a frontage and aspect to the westward, that being a point of the compass from which we seldom get extreme heat or cold in the English climate. On the other hand we think it conducive to the health of the horses that in exposed situations the protection afforded by plantations of timber trees, such as Larch and Scotch Firs, are desirable; still we must not overlook in selecting a position for the stable the situation of the mansion, having due regard to appearance, convenience, and economy, a gravel or sandy soil probably being the best whereon to erect our building. With regard to materials for the erection we prefer stone walls as well as roofing, such as we often see in certain districts and in Scotland; when compared with brick and slate or iron roof, a stone building is warmer in winter and cooler in summer, and also more enduring. The

cost will be regulated by the materials, which can be most easily obtained in the district where required for use. As it is not convenient to give any plans of architecture or construction we will describe as nearly as we can such designs and principles of construction by explaining in detail the objects we have in view. It is not our intention to describe, except in one or two cases, such stables as were formerly in use, and have since during the past twenty-five years been given up and repudiated by judicious owners of valuable horses, and those who can afford to make an outlay in arranging their stable accommodation upon a style and extent commensurate with their requirements; we shall therefore endeavour to describe only that which we consider best in stable accommodation in such a way that a single stall or a single loose box may by multiplication only, be carried out to any extent which may be required. It is not necessary either to discuss estimates of cost of the building and construction of such stables as we recommend. We prefer to allude more particularly to the advantage or otherwise of certain plans of construction as compared with others which have been advocated.

The first, as we consider, real attempt to make any decided improvement in the accommodation for horses in their stables by Government authority which we have noticed occurred through a Commission appointed to consider the improvement of barracks, who published a report in 1864 on the ventilation of cavalry stables. This contains some suggestions that have since borne fruit by inducing the builders of nag stables, especially those for gentlemen's horses, to consider the actual requirements of horses to keep them in health, and to apply in their construction various scientific modes of ventilation and other practical advantages. The old rule for the construction of cavalry barracks seems to have been that the men should be housed over the horses, and this system has prevailed even up to the present time in various stables in some gentlemen's establishments. The rooms above, however, hindered ventilation through the roof, and air shafts, if adopted at all, offered but an imperfect remedy. The horses generally stood in a double row, heel to heel, with a single path up the centre.

The report states, "The defects of this arrangement are clearly indicated by the following recommendations of the Commission:—That the old transverse arrangement of stables be discontinued. That in future all troop stables be built with open roofs and ridge ventilation from end to end. That the roofs be partially and sufficiently glazed to afford plenty of light. That in so far as concerns facility of ventilation and supervision the open-roofed stable, having a central passage 14 feet in width between the stalls, is preferable to the open-roofed stable with a central division wall, and two passages each of half that width. That besides ridge-ventilation and light each stall should be provided with a swing window over the horse, and a row of perforated bricks should be carried round the stable under the eaves. That each stall should have a supply of fresh air introduced in the space between the stalls about 6 inches from the ground through perforated bricks. That improved impervious paving be introduced. That all drainage within the stable be carried away in shallow impervious open drains by a rapid slope to the outside of the stable; covered drains and cess-pits within the stables or near the stable walls being discontinued."

We now offer some suggestions and remarks, chiefly taken from the body of the report, which will further explain this subject; and as these were made by Mr. H. P. Frere in an essay published in the "Journal of the Royal Agricultural Society of England" in 1864, we quote them in order to exhibit certain matters which, without plans and sections, may not be so easily understood by the reader. "As to the open roof. Since no suggestion is made as to the covering of the roof with slate or otherwise, the question of partially liming or ceiling between the rafters is not touched upon. The report is in this respect somewhat defective. It is suggested that the light be admitted on the northern side of the ridge. The question of paving involves the following:—Paving should wear well, not become slippery, be watertight, be easily cleansed. The objection to cess-pits extends to all sewers or covered drains within stables, which are merely cess-pits of another form. The drains, like the stable floors, should be impervious to moisture, and made of smooth materials, carefully laid, having as rapid an incline as is possible to obtain. These gutters should discharge into an underground drain (which should be a drain pipe) at a distance of at least 12 feet from the stable wall. As the surface drains always receive a considerable quantity of dung, besides urine and water, it would be advantageous to provide a trap at the openings of the underground drain to prevent any effluvia from returning and to avoid stoppages. Mr. Frere further observes when it is in contemplation to provide stable accommodation for horses in stalls amounting to 100 square

feet superficial, and 1600 cubic feet for each horse, the question arises, Whether a single step further would not serviceably provide each horse with a box? With judicious management and a moderate supply of straw the utmost comfort of the horse may thus be combined with the best economy of manure."

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Upon some of the sand and gravel soils where the practice is to sow late the horses will be still engaged in working the land and drilling Wheat. Upon these dry soils we prefer to sow an early white Wheat, especially if it is in a southern or south-eastern county, such as the Champion White from Berks; Morton's Red-strawed White from Gloucestershire and Hampshire, the long-eared Rough Chaff from Essex, and the Fenton White from the northern districts and Scotland. These are well adapted for very dry thin soils which are not likely to throw up an abundance of straw, for these, as well as the Chidham white sort from Sussex, are long-strawed varieties. Where the land is really in full condition and of a strong loamy nature we prefer the Club-headed Rough Chaff. This grows very short in the straw, and is hardly ever known to fall down or become laid, and is certainly the most productive and best qualified Wheat we know of; for on good land last year we saw fourteen sacks per acre grown, and this year twelve sacks per acre, with a very moderate bulk of straw, and grown upon a dry gravelly soil in a southern district. The land has been very dry, in many cases working as light as Barley soil should do. Some parties have hesitated to sow or drill while the land is so dry; but we never hesitate to sow when the period has arrived, for we never can tell what weather may occur further on in the season. This has been one of the finest seasons for Wheat-sowing we can ever recollect, especially for the strong, cold, flat-lying soils. Ground of this nature has been worked very fine on the surface, and the only thing to be feared in consequence is an abundance of weeds in the spring, such as Gold-weed, Marigold, and Black Bent Grass. Should this be the case, and the Wheat sown or drilled close so that it cannot be horse-hoed, the weeds cannot be destroyed, and may therefore seriously injure the produce; hence the necessity of drilling at 10 or 12 inches between the rows. Upon land given to weeds the crop is never safe unless the horse-hoe can be worked freely between the lines. Carting and storing Mangolds will still be going on, but ought now to be finished, and the pitting of Carrots and Swedes continued.

The odd horse in some cases has been lately employed in carting Clover and Ryegrass off the lea ground intended for Wheat, and a valuable produce has been available for the cart horses and other stock, including dairy cows. Cutting Clover and grass in the same manner will be continued for some time yet. Although at harvest there seemed to be hardly any prospect of grass this autumn, yet we are now cutting a very valuable produce, and shall continue for two or three weeks yet unless severe frost occurs to destroy the crop. Some farmers object to cutting young Clover and grass seeds at this period; but we have done this at times for many years, and prefer it to feeding, especially with sheep or horses, as these bite so closely on the crowns of the Clover plants as to cause them to die off during the winter, and it is often through injudicious treatment the Clover plant is lost, and the land in consequence is called Clover-sick.

Hand Labour.—The men and women having now finished picking and gathering the Potato crop and pulling the Mangolds for storing and pitting, will now for some little time be engaged in pitting in heaps in the field other roots, such as Carrots and Swedes. When this work is done by the acre, as it always should be, whole families may be employed with advantage to themselves and their employer. The fern and also rough grasses should now be cut in the plantations and rough grounds and used for various purposes, such as covering the heaps of stored roots and littering yards for young cattle, thus saving straw, which is dear everywhere—in some districts nearly or quite as dear as hay—and should therefore be economised.

Live Stock.—Young cattle and dairy cows have lately been consuming the Mangold leaves where the land is clearing for Wheat-sowing. In case, however, the land is held over for Barley and drege in the spring the leaves may well be ploughed in, for they always prove a useful manure for the next cereal crop. The bullocks in the boxes intended for sale at Christmas should now be allowed the full and utmost quantity of superior food, say 4 lbs. of cake per day and 2 lbs. of mixed meal composed of bean and maize meal, good sweet Oat straw, and a diminished quantity of roots (not more than 56 lbs. of Mangolds, 60 lbs. of Cabbage, or 56 lbs. of Carrots per day), without hay, good-conditioned straw being the best and safest food for really fat animals if fed for profit. Even if intended for competition in the cattle show we must beware of hay, for it is, when the cattle are well fed in other respects, the most dangerous as well as damaging food they can receive. We say this with confidence after a long experience.

The management and attention to the bull on the home farm is an extremely important matter in various ways, for it is not only proper that the animal should be well treated and fed but that the apartment where it is kept should be convenient and also very strong. We saw recently a statement which related that a bull broke his tether by accident, and whilst at liberty in the farmyard attacked and seriously disabled his keeper and assistant. Our rule is that the

apartments called the bull pens should be separated by a sliding door which can be drawn or withdrawn, so that the man in charge may never at any time be in the actual presence of the bull either for littering the pens or for any purpose.

POULTRY AND PIGEONS

FAMOUS POULTRY YARDS.

KNIGHTON VICARAGE (THE REV. M. H. & MRS. RICKETTS).

WE have described poultry yards and poultry yards, each in some way differing from the others, and from some peculiarity of its own interesting to the fancier; but still there has been this common to all of them—in all we have before seen some few breeds, in some cases only one or two, in others possibly ten or a dozen, bred up to exhibition standards. We have now to describe a yard far different from all the others, and unique, we believe, among English poultry yards. Imagine an establishment of ninety runs, where eighty varieties of fowls are to be seen! Our readers may well pause here, incredulous with wonderment. We turn to the schedule of the great Crystal Palace Show, where representatives of every kind are generally supposed to be collected, and find that provision is made for but forty-five distinct sub-varieties. Here is a private establishment where, granting fifteen sorts to the "any other variety" classes of the Palace, half as many varieties again are to be seen as at the great National Exhibition, for eighty is in truth as nearly as possible the number which are to be counted in excellence at Knighton Vicarage.

Before we come to the birds we must give some account of their surroundings. It has been our fortune to see many yards in lovely places; it would seem as if poultry fanciers had a peculiar eye for the picturesque; probably the truth is that when Nature has made country beautiful with undulation there are to be found spots specially inviting for the indulgence of such a pursuit.

On the Welsh side of a deep valley through which the Tees flows, dividing Shropshire from Radnorshire, rises the little town of Knighton; almost in it, and yet quite out of it, is the vicarage, perched high above the valley. We enter by a short carriage drive. On the right the church is close at hand, the vicarage in front, and beyond it across the valley a precipitous Beech-clad mountain. The woods are glowing golden with the evening sun upon their autumn tints. Past the walled churchyard to the right a lawn, with here and there a stately tree, slopes gently down to a paddock, where we at once spy many poultry runs. To the left is a kitchen garden, divided by shrubs from the lawn and walled all round save on the side towards us. Here, too, are signs of many more poultry runs, and the shrill voices of many Bantam chattering catch our ear. As we approach the house, on each side in the distance are peeps of lovely Welsh border scenery; but the poultry are our business, and we must hasten to them.

We should first tell our readers that the object which Mr. and Mrs. Ricketts set before them in making their collection is not to keep any one sort of surpassing excellence, or to breed so many prizewinners, but to have a good specimen pen of every known kind of poultry, and indeed many which can scarcely be called known. This is the great peculiarity of the Knighton collection. Breeds which we have heard of as possibly to be seen here or there, abroad or in some obscure place, are here to be found together and seen at a glance, side by side, as easily as the Pheasants at the Regent's Park gardens.

The establishment is divided into two complete departments. The one which we have seen on the left of the entrance, and which occupies a large part of what once was kitchen garden, is the special care of Mrs. Ricketts, and is devoted almost entirely to the smaller varieties of poultry—Bantams, Silkies, Polish, and Sultans—and admirably adapted it is to its purpose. A substantial stone wall is the boundary of the garden; it curves gently, so that the aspect of the part given up to poultry varies from south to east. Against it are many houses, and from them run their neatly gravelled yards to a walk whence all can be seen; we counted about forty, all the very picture of tidiness. Without disparaging the many beautiful yards we have visited, we may confidently say that none have ever interested us more than this range of houses. The gravelled walk curves round parallel to the wall; on the right are the runs, on the left a thick Privet hedge, lately planted for shelter, and trained against wire, and beyond it a large closely mown lawn, the playground of many tiny Bantams and other privileged chickens.

But we must tell our story in order. First come a block of six houses; all are double, with inner and outer apartment, specially

constructed for Polish. The fronts of the outer parts are partially glazed like garden lights, and the doors of sparrow-proof wire. In these the birds are fed and entirely confined in wet or bad weather; the good result is very apparent in their bright glossy condition and fully expanded crests. These and all the houses are made ratproof. Strong small-meshed wire netting is nailed to the wall and sunk 6 inches into the ground, and then a layer of cement is laid over all the floor, topped of course with dry earth. The yards are entirely covered with coarse clean gravel from the neighbouring river, and their inmates supplied twice daily with fresh green food. First are a mixed collection of various promising Polish chickens, then a pen of adult White-crested Blacks; then Golden, one hen with a magnificent crest; then Padue Chamois, a beautiful lot; we have never seen their like since the great Paris Exhibition; the cock rich in his tints of sienna and Indian yellow, and well nigh through the moult, and one hen in particular with great clearness of the white spangling on her canary plumage. As we proceed, here and there a walk crosses the main walk at right angles, running up to the wall with ranges of minor runs on each. In the first of these lesser alleys is one somewhat larger house, the habitation of a multitude of small stock, which run out on the grass lawn. Double gates across the chief path prevent their trespassing upon it as they cross to their runs. These and all the gates about the place have small hooks on both sides to prevent all chance of accident from their being blown open.

Bantams of endless variety in form and colour are tenants of the next places; all have little perches upon which the cocks delight to elevate themselves and crow. There are White Rose-combed and Black Rose-combed—a cock of the latter kind we specially admired; Cuckoo—like miniature Scotch Greys—White Japanese with black tails; Dark Japanese, black with brown hackles, the offspring of Lady Brassey's famous stock brought home in the *Sunbeam*, but hardly so short on the leg as their parents; Tailless of various colours, one cock light-coloured in body with glowing parti-coloured saddle hackle such as we have seen imported from India; Nankins of various merit, rose-combed and single-combed, by far the best of them being a tiny single-combed cock, which confirmed our long-formed opinion that the smallest specimens of the breed are single-combed; Black and White-booted, one pair of the former very short and compact; Silver-laced and Gold-laced, three pullets of the latter much took our fancy for their bright ground colour and even lacing; Game Bantams of every sub-variety, many of high style and well fitted for the exhibition pen; there are Black Reds which we saw in a first-prize pen at Wolverhampton, and wheaten hens, and a cock of splendid colour evidently bred from one which we greatly admired for his splendid hues, now too often sacrificed to form; beautiful Brown Reds, among them one pullet splendid in golden neck; Duckwings and Birchen Duckwing, and Piles as handsome for their rich markings as their tiny size; one pair would grace any show room. The contrivance of their many little runs and houses of all shapes and sizes is most clever, and seems a very labyrinth.

At one place we came upon a novel and comfortable home for a troop of infant Bantams, for, like all enthusiastic fanciers of these pygmies, Mrs. Ricketts rears some late-hatched broods; but what a shock to the gardener's feelings! Cuttings have been ousted and chickens reign in a garden frame; the little things twittering happily under the glass, and utterly unconscious of withering east wind outside. More and more blocks of larger and equally well-kept yards! We can scarcely remember all their inmates; white Silkies and coloured Silkies, rich quaint-coloured Brownies clad in æsthetic shades of gold and bronze, whose origin was in a famous Shropshire yard; La Flèche, and pure White Houdans, not mongrels, but veritable Houdans in comb and claw; then a beautiful bird, a Pile Houdan cock, his red and yellow markings deep and good, a sprightly vigorous fellow; then come Polish again, Silvers, and next our favourite the old-fashioned pure White, some of them mediocre, but one hen a really grand bird. Then last of the Polish, some chickens whose race is not yet distinctively founded, blue with white crests, promising to be lovely. Last, but not least, in the range were Sultans, a fine pen and getting fast through the moult, as were nearly all the birds in these warm and nice quarters. We shall hope to see them exhibited, for the cock and at least two hens are well worthy of it, and with their two-roomed house, like the other tufted birds they are well screened from sun and rain. A grass run is being cut off from the larger chickens' lawn for their special benefit. Here we turn round to the left and come back by the said lawn; on it are several coop-like houses with little runs in front, and over it run little Bantams of all kinds mixed with Sultans, Andalusians, and White Leg horns.

Through all this multitude we scarcely saw a drooping or sickly bird. The secret of this is that every house and yard is kept scrupulously clean, purified every morning, and constantly disinfected. All are carefully watched by the eye of their mistress, and any that ail are at once removed to a hospital and doctored. Even beyond the special playground of the chickens are still younger chickens in the remaining portion of the kitchen garden. Their mothers are cooped, and they run merrily among the vegetables in quest of insect food. But we are outrunning our space; our tale is scarcely half told, and is, we are sure, too interesting to a true fancier to be curtailed, so we must resume it in another number.—C.

THE POULTRY CLUB.

Will you kindly allow me to remind your readers that the Annual General Meeting of the Poultry Club will be held at the Crystal Palace on Tuesday next, at 3.30 P.M.?

The Report will be then submitted, and several questions connected with the preparation of the Standard of Excellence and other matters will be discussed.

The Meeting is open to all who may desire to attend.

I may perhaps mention that the subscriptions of Members elected at the Palace Meeting run from the 1st January next.

47, Chancery Lane, W.C.

Nov. 8th, 1881.

ALEX. COMYNS,

Hon. Sec., Poultry Club.

OUR LETTER BOX.

Stocking a Rabbit Warren (*Old Subscriber*).—Wild rabbits are better than tame for a warren, and the best time for stocking is early spring. One male to thirty females will soon stock an acre. The number that can be grown depends entirely on the pasturage and the food that is otherwise supplied. If they eat the trunks of established trees it is evidence that the warren is overstocked, and the animals must either be reduced in numbers or the food supply increased. Rabbits will bark young Larches and destroy them—that is, trees that have been newly planted, but they will not attack established trees unless driven by famine to do so. Galvanised wire netting 3 feet above ground will suffice if it is properly fixed below ground also. It is little use sinking it straight down, as the animals are very persevering, and will burrow under it sooner or later. The best mode of fixing is to bend the bottom of the wire inwards, or facing the warren, covering a foot of it 3 or 4 inches deep. They invariably commence scratching within a foot of the fence, and of course, if they come in contact with a layer of wire, their further progress is obstructed; but if there is no such obstacle they will descend for 3 or 4 feet if the soil is light.

Roup (*F. R.*).—We can only suggest the application of the usual roup remedies. Begin with a dose of castor oil, afterwards wash the face and nostrils frequently with Labarraque's solution of chlorinated soda diluted with twice its quantity of water. Give also Walton's roup pills as directed on the box. The house where the birds have been should be thoroughly disinfected. If there are any other symptoms than those you have described write again, and we will advise you as to further treatment. We cannot understand the blindness of the recovered birds. Do you mean that one eye remains closed, or that the sight of one eye is destroyed?

Distinguishing the Sexes of Canaries (*C. L. R.*).—Cock birds are more bold and fierce in general appearance than hens, and have a more bloomy plumage. Their heads are somewhat larger and longer than the hens', and they stand a little higher upon their legs. They are also more sprightly in their action. When in full vigour of song, especially approaching the breeding season, the cock birds can generally be told by (what is understood by the fancy), "blowing" them. Many fanciers can easily pick out the cock birds from the hens when in their nests.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1881. October. November.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.		On grass.
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun.	30	30.230	37.3	35.0	N.E.	43.2	44.4	31.4	84.8	24.4	
Mon.	31	30.213	32.8	32.4	N.	42.2	40.0	28.7	55.6	22.8	
Tues.	1	29.878	35.3	33.6	S.E.	41.3	39.3	31.9	44.6	23.3	
Wed.	2	29.827	39.2	37.6	E.	40.9	42.0	32.8	62.6	27.4	
Thurs.	3	29.789	34.7	38.4	S.E.	41.2	53.5	36.7	52.2	33.3	
Friday	4	29.883	56.9	56.6	S.	42.6	60.4	38.4	66.1	38.4	
Satur.	5	29.975	57.9	54.7	S.	45.4	62.5	53.6	90.2	46.6	
		2.971	42.6	41.2		42.4	48.9	35.2	65.2	31.9	
										0.444	

REMARKS.

30th.—Fine, bright, and cold.

31st.—Hazy; calm, fair, cold.

1st.—Hazy, cold, with showers of snow and sleet.

2nd.—Fair, sunshine at intervals.

3rd.—Rain and fog, but milder; clear in evening.

4th.—Very damp and warm, house walls streaming with wet.

5th.—Fine, warm, spring-like day.

The mean temperature of the week is considerably below the average, although the last two days were exceptionally warm; no better proof could be given of the low temperature prevailing in the early part of the week.—G. J. SYMONS.



17th	TH	Kingston, Westminster Aquarium, Tunbridge Wells, and
18th	F	[Brixton Chrysanthemum Shows.
19th	S	
20th	SUN	23RD SUNDAY AFTER TRINITY.
21th	M	[Shows.
22nd	TU	Southampton, Manchester, and Northampton Chrysanthemum
23rd	W	Birmingham and Wimbledon Chrysanthemum Shows.

IMPORTED ORCHIDS.

THIS subject is one which is not thoroughly understood by all gardeners, though it is of the greatest importance to everyone interested in Orchid culture, and it is, moreover, a subject upon which very little has been written. Probably a few remarks may therefore be useful to some readers of the Journal.

It has often been asked, What becomes of all the Orchids that are annually imported to this country?

Many thousands of plants from various parts of the world find their way into the English market from the numerous collectors employed by the leading nurserymen, such as Messrs. Veitch, Bull, Williams, Hugh Low & Co., Sander, and the New Plant and Bulb Company, besides private gentlemen and others. Then it is again asked, What becomes of all these? The question has been answered by many, and by all in the same way—namely, that more Orchids are killed than are grown. Before Orchids were so well understood as they are at present thousands of valuable plants were killed owing to the collectors not furnishing the growers with sufficient information with regard to the temperature, climate, and altitude where the plants were found growing in their native habitats. If they came from the tropics it was thought they all required the same treatment, but experience has proved this to be a fallacy.

The trade that is known as Orchid-importing is rather a critical one, subject to great fluctuations and disappointments. It is very disheartening to both employer and collector, when a very valuable importation of Orchids has been received, to find on opening the cases that there is scarcely one living plant. The condition in which Orchids are received depends in a great measure on the time in which they are collected. This may be considered the most important point, for if the plants have abundant young growths the chances are against their arriving in this country safely. The best time for sending the majority of Orchids to England is when the season's growth is completed, and they have been subject to a certain amount of drying or ripening; but no rigid rule can be laid down for the guidance of collectors; much depends upon their own skill and judgment. Packing is another very important matter, for if Orchids are not well and securely packed they present a miserable appearance when taken from the cases. Each collector has his particular style of packing plants, as certain genera require to be packed quite differently from others. I need not go into details with regard to packing, for there is so much to be said in connection with it that a whole chapter may be written on it.

When Orchids are newly imported they present at the best

of times a rather sickly appearance; but with a little kind treatment they soon revive provided there is sufficient life and vigour in them to make fresh growth. Many are under the impression that when Orchids are newly imported all that they require is to be potted, placed in a high temperature, and given plenty of water to "freshen" them up; but it may be here remarked that nothing proves more fatal than such treatment. When the plants are received they should be thoroughly examined, taking care to remove any loose or decayed matter they may have about them. Of course different genera require different treatment, and I will take some of the principal that are of most importance to horticulturists and give a few particulars respecting each.

AERIDES.—These are all epiphytes, and may be grown in either pots or baskets, baskets being preferable for many species. The present genus includes several very showy species, of which the following will be fair samples:—*A. crispum*, *A. Fieldingi*, *A. japonicum*, *A. odoratum*, and *A. quinquevulnerum*. They are always imported in dry boxes or cases. If the plants arrive in the best possible condition they have a slightly shrivelled appearance. Much depends on the time they have been coming. They should immediately be spread out thinly in a cool stove for a short time, placing them so as the foliage will not come in contact with any wet material. They should remain in this position for a few days until the foliage is becoming a little plump. Little or no water will be required on their roots or leaves, as the plants will take up sufficient from the atmosphere. Shade is essential to all newly imported plants. After the plants have plumped a little they may then be potted, using only broken potsherds and sphagnum. After they have commenced growing a top-dressing of sphagnum will be beneficial, watering them rather sparingly till they commence rooting.

ANGRÆCUM.—*Angræcums* of the *A. eburneum* type are rather difficult to import, for they generally lose a large number of their lower leaves. I find it a good plan to hang them up for a time to enable the leaves that remain to become firmer in texture, after which the plants may be placed in potsherds and sphagnum, watering rather sparingly till they begin to form fresh roots. *A. eburneum* and *A. sesquipedale* are the two most showy species, but there are several others that are extremely pretty and well worth growing.

ANSELLIA.—Provided *Ansellias* are collected at the proper season and are packed safely there will be no difficulty in establishing them. They may be potted as soon as convenient after they have arrived, in crocks, peat, and sphagnum. They will require to be watered rather cautiously till they begin to make fresh roots, after which time they may be watered more liberally and removed to the warmest end of the stove.

CALANTHE.—*Calanthes* of the *vestita* type are so well known that nothing need be said here with regard to imported pseudo-bulbs, for they are propagated so readily in this country that they are not frequently imported now-a-days. This section of *Calanthes* is the most useful of any Orchids, *Dendrobiums* excepted; they are easily grown, and what makes them more valuable is that they flower at a time when choice flowers are scarce. Many gardeners imagine that they are difficult to cultivate and require some special treatment, but they grow well in any ordinary stove temperature provided they are favoured with a good light position during the season of growth.

CATLEYA.—These are often received in poor, and in some

cases almost worthless condition. It sometimes happens that the collectors cannot always find them at the proper time, and are sometimes delayed in transit; the consequence is that the young growths are too far advanced. When this is the case they seldom do much good the first year; owing to the growths being made in total darkness they are very weak. After a short time it will soon be visible if they intend to grow or damp off. When the growths are in such a stage they may be greatly assisted by placing them in a very shady place for a few days, gradually introducing them to more light. The young growths will then gain strength provided there is not too much heat and moisture in the house, after which time they may be potted in a very light compost, using crocks or charcoal freely. Very little water will be required till they have fresh roots. When Cattleyas are received in good condition they are by no means difficult to establish.

CÆLOGYNE.—There are many species in this genus that are of no real value to the horticulturist. *C. cristata* may be regarded as the most handsome and useful; indeed, it is a plant that ought to be more extensively grown. This is not difficult to import, owing to the fact that it has large pseudo-bulbs. Even if they lose their leading growth they invariably break back from the second pseudo-bulb, making rather small growths the first year. They may be potted as soon as convenient, keeping them rather cool and dry for a time.

CYRIPEDIUM.—This is another useful genus and general favourite with all. The common species, such as *C. insigne*, *C. barbatum*, and *C. venustum*, are very easily managed; the choicer kinds require a little more attention. I find that some of the species, such as *C. caudatum*, *C. Stonei*, and *C. villosum*, do well potted in crocks and a little moss till they commence growing, when that may be surfaced with moss and peat, watering more liberally as root-action advances.

DENDROBIUM.—The value of Dendrobiums is well known, and they may be classed amongst the most useful Orchids. The species vary greatly, some producing pseudo-bulbs only an inch or two long, whilst others attain the length of 6 or 7 feet. It is difficult to lay down any strict rule for Dendrobies, there being several sections, some of which grow better on blocks, others in baskets, and some in pots or pans. The same rule applies to Epidendrums as to Dendrobies. *E. erectum* grows to a height of 8 or 9 feet, and slender, and some only attain the height of so many inches.

LÆLIA.—Some species of Lælia are very showy and extremely fragrant. With regard to imported Lælias they may be placed on blocks, in baskets, or potted at once; the condition in which they have arrived will be the best guide. If the growths are advanced they will require every encouragement; if, on the other hand, they are dormant it will be most advisable to keep them quiet till they start.

LYCASTE.—The genus Lycaste includes two or three species that are well worth cultivating, *L. Skinneri* being the most generally useful. They will, nevertheless, require much about the same treatment, and may be potted as soon as received in a light compost, all succeeding best in pots or pans and placed in a cool stove, requiring little water till growth has commenced.

MASDEVALLIA.—Nearly all the species of Masdevallia are great favourites with Orchid-fanciers. Some of the most showy kinds, such as *M. amabilis*, *M. Harryana*, *M. ignea*, *M. Lindenii*, *M. towarensis*, and *M. Veitchiana*, are extremely useful. They are rather difficult to import owing to the fact that they are found at high elevations, where it is naturally cool and moist; the great difficulty is in bringing them through the hot plains, the great variation in temperature proving fatal to thousands of plants. If they reach this country alive they generally lose a quantity of their leaves. No time should be lost in having them potted and placing them in a cool house. Masdevallias should never be allowed to become dry at the roots at any time.

ODONTOGLOSSUM.—Everyone that knows what an Orchid is will be familiar with at least one species—viz., *O. Alexandræ*. This species is cultivated and imported more extensively than any other, and anyone who has been a frequent visitor to the London auction rooms could not fail to observe in what unpromising condition the importations are received. Often have

paper bags of *O. Alexandræ* been sold for 10s. Probably one-half of the plants that were in the bag were nearly dead when they were bought; but the purchaser is well pleased with his bargain, for he knows that if he can only induce three or four pieces to grow he will have a cheap ten shillings' worth at the expiration of a couple of years. *O. Alexandræ* and all the other species belonging to that section may be potted as soon as convenient in a mixture of peat and sphagnum, with a little broken charcoal, and placed in a cool close house for a time till they commence growing, when more air can be admitted, for they delight in a moist cool atmosphere.

ONCIDIUM.—This is an extensive genus, some species of which are very showy, yellow being the predominating colour in the flowers of many species. Oncidiums are extremely variable, some species having pseudo-bulbs longer than one's fist, whilst others are quite destitute of pseudo-bulbs; *O. Lanceanum* and *O. luridum* represent the latter section. It will be safe to say that all the species possessing pseudo-bulbs may be treated as advised for Odontoglossums, the majority of them coming from cool districts; while, on the other hand, the *luridum* section requires the temperature of the East Indian house.

PHALÆNOPSIS.—Phalænopses have been imported rather extensively of late by two or three of the leading London nurserymen, and small plants were at one time offered at 5s. each. So many plants have been lost in transit to this country that it has been found advisable to establish the plants on sticks or pieces of wood before sending them home. If they are much shrivelled when received they will be greatly benefited by spreading them out on a board or something similar for a short time till their leaves have become a little more firm, after which they may be placed in baskets or shallow pans, and suspended from the roof in the warmest stove.

PLEIONE.—These will in all probability be imported in large masses, and should therefore be divided. There will be two or three-sized pseudo-bulbs. Each size should be potted separately and suspended near the glass in the stove or Orchid house. A mixture of fibry peat, loam, and sphagnum will suit them admirably. If the young growths are far advanced when imported great care should be taken not to injure the young roots, as they are produced with the growths.

SACCOLABIUM.—What has been advised in this paper for *Aerides* will apply with equal force to *Saccolabiums*, as they are very closely related to each other in general appearance. To grow *Saccolabiums* successfully they require a very high temperature.

VANDA.—These form noble plants to the Orchid house when not in flower, and when *V. tricolor* and *V. suavis* are well in flower they are very handsome. Imported plants may be treated as *Aerides*, and when established should be potted in sphagnum and charcoal.

I have only named a few of the most useful genera. It would be impossible to lay down any rigid rule for the guidance of amateurs, as so much depends on the condition in which Orchids arrived, also whether they are from cool or tropical regions.—W. K.

STRAWBERRY FARMING.

(Continued from page 252, last volume.)

Manuring.—I am reminded by the near completion of the present volume that I promised to conclude my articles with a few hints on the subjects of manures and Strawberry enemies. In regard to the former subject I do not assume to lay down directions suited to all soils and localities, but confine my remarks to the course which experience has proved to be best suited for such soils as we have here. As I have a strong conviction that similar thin soils, such as cover many unreclaimed moorlands, will by-and-by be in demand for Strawberry farms, and that such soils will be found the most profitable for the purpose, my remarks may be of some benefit to intending growers.

A cardinal rule in all cultivation is to return to the soil a full equivalent to what we may remove. In the case of the Strawberry the necessity of this is even more apparent than in ordinary farming, for here there is properly no annual rotation of crops. The same crop is raised year by year so long as we can induce the plants to bear, and the Potato rotation every five or six years is looked on more as a cleaning than a recruiting crop. The same

ingredients are therefore being drawn from the soil year after year. First of all we lift the annual crop of from 1 to 3 tons of fruit per acre; next we annually lift, say, double that weight of runners and weeds with adhering soil; then lastly, at the end of the rotation, we remove all the old plants, say 10 tons per acre. This constant drain upon a thin stratum of soil must in a few years render it incapable of further production, unless we can contrive to restore a full equivalent. It is evident that we simplify the problem by first of all restoring the weeds and plants in the form of a decayed compost, leaving only the equivalent for the fruit to be considered. Some growers in their ignorance burn all weeds, reducing the equivalent of a ton of soil to 1 or 2 cwts. of sand with a slight admixture of potash and other minerals; and, as if even this were of no value, neglect to return it to the land, or only scatter it about the spot where it was burned. In this way the body of the soil is reduced, and the valuable volatile products of the plants dissipated in the air.

In the early days of sugar cultivation in the West Indies it was usual to employ as fuel the megass, or refuse cane from which the juice had been extracted, the ashes being carefully returned to the land. Gradually but surely the fertility of the soil diminished. Experts recommended various animal and mineral fertilising agents, but the full powers of the soil were not recovered until the megass was replaced by coal and returned as a top-dressing to the land. The humus was being surely exhausted, and no mineral matter could take its place in enabling the soil to retain sufficient moisture to render soluble the food ingredients contained in it. The case is very similar to what is now before us. The ripe fruit of the Strawberry, like the expressed fruit of the sugarcane, contains little else than water, and its removal from the land only slightly impairs its powers. The more solid parts of the plants and weeds rob the soil to a far greater extent, and the first concern of the grower should be to return these in the form best fitted to repair the loss. This brings us to that most valuable adjunct of the Strawberry farm, the compost heap. Thither all refuse from the land should be carted and stacked in neat heaps 4 or 5 feet deep. Some at once mix the rubbish with quicklime to hasten decomposition, but it is better to allow the heap to ferment, which it will speedily do if stacked when somewhat dry. We believe in using as little lime as possible, and find that 1 cwt. to the ton of rubbish is quite enough if the heap be first allowed to heat for a month or two.

After turning and mixing with the lime and any road-scrappings or ditch-cleanings that may be available the heap is again allowed to ferment for a month or more, when, as fast as good barnyard manure can be obtained, it is turned over by degrees and well mixed with the manure. The latter is used as fresh as possible, and in quantity sufficient to heat thoroughly when mixed. This heating effectually destroys the vitality of any weeds or seeds that might afterwards become troublesome. From time to time the contents of the wash-tank may be thrown over the heap, and by the time the season for top-dressing comes round the whole should appear a mass of fibrous soil. We recommend its use mainly as a top-dressing for all plantations that have yielded a crop. Young plantations well laid down ought to do without dressing till they have yielded a full crop. The compost is spread along the rows of plants on the approach of winter, and besides affording nourishment in the most suitable form helps to protect the crowns from frost. The rows are then slightly earthed up with the plough. The portions of plantations nearest the buildings may have the contents of the wash-tank given them instead of top-dressing during the winter. Such is all the assistance in the way of manure that the most successful growers in this quarter give their plants, and nothing else seems requisite. We thus return all we take from the soil, the added manure being considered a full equivalent for the fruit sold off.

Artificial manures have been tried, though in a haphazard way, but I have not been able to trace any distinct benefit from their use; notably, some of the farms mainly employing them give every sign of exhaustion, especially where combined with the plan of burning the rubbish. I therefore avoid giving any directions as to such manures. To be applied at all with certainty of advantage we should require a careful analysis of soil, plant, and fruit, and this I cannot afford. Were such an analysis taken, say, of soil producing the highest quantity of fruit (and there are instances of 4 tons to the acre in this locality), one might have data on which to decide with certainty the kinds and quantities of artificial manures necessary to maintain the fertility of our soil, or to render other localities suitable for this valuable crop. Meanwhile I find that the course I advocate is eminently successful.—WILLIAM RAITT, *Blairgowrie*.

NOTE.—The annual growth of spongiolous roots on or near the surface renders surface-dressing almost a necessity; and if, as I

venture to think, these roots are the main feeders of the fruit, while the older and deeper roots are the feeders of the plant itself, there is a ready explanation of the excellent effects of such dressings when applied so that they can be readily assimilated.—W. R.

CHÆNOSTOMA HISPIDUM.

THE genus *Chænostoma*, though including more than twenty species, is not largely represented in English gardens, for few species besides *C. hispidum* and *C. polyanthum* are in cultivation, and these are rarely seen except in a few large and choice collections, such as those of the leading botanic gardens. They might, however, well receive more attention, as dwarf compact plants that possess any pretensions to beauty are always useful for deco-



Fig. 72.—*Chænostoma hispidum*.

orative purposes, especially in greenhouses or conservatories, where the want of sufficient diversity in the plants suitable for the front row on shelves and stages is frequently experienced. *C. hispidum* (fig. 72) is particularly useful for this purpose, as neat compact little bushes 6 to 9 inches in height may be obtained in 60 or 48-size pots; and though the pinkish white flowers are small, they are produced in great numbers and continuously over a good portion of the summer, sometimes quite concealing the foliage, the plants resembling compact masses of flowers. A compost of light loam, peat, and sand suits both *C. hispidum* and *C. polyanthum*, the latter differing from the former chiefly in its more straggling habit, and in its flowers being mauve or lilac-tinted. Propagation may be effected either by seeds or cuttings in spring, though cuttings may also be inserted in early autumn.—L. C.

GARDEN POTATOES.

WILL you let me point out that "SINGLE-HANDED'S" first proposition on page 371, that "Potatoes on rich old garden soil produce much greater crops of haulm than of tubers," is hardly correct or to the point? The expression is vague, misleading, and unscientific, especially coming from such a writer. Had he said that "haulm was produced at the expense of tubers in soils over-rich in soda and lime, and deficient in potash," he would have conveyed a distinct and plain meaning; and had he added that the continual application of farmyard manures tended to produce this state of things, it would have expressed all he wished. Rich old garden soil is produced in most cases by the application of stable-yard manure which the gardener is usually allowed, and this, together with the returned vegetable refuse—if in a green state all the better—will keep a garden fertile for

a very long time, if not for ever. Our garden here is about one hundred years old, and has, as long as anyone remembers, been tilled exclusively with these manures, and it continues to produce good crops of all kinds of vegetables, Potatoes especially. We have had tubers lying in the fruit-room for a month, some of which weigh 2 lbs. each. These manures will provide a considerable quantity of potash, straw and manure included in the stable-yard manure, but not nearly enough, according to "SINGLE-HANDED," and our Potatoes ought by this time to be elongating their tops and producing fewer and fewer tubers of constantly decreasing size, but such has not happened yet. Indeed the haulms have never been over-luxuriant—not more than I like to see them. Onions are equally as good as Potatoes. The subject taken up by your correspondent is an important one; and I might, perhaps, suggest that the interests of the practical gardener would be best consulted by taking up one garden vegetable at a time, stating what substances it requires most of to grow it successfully, and where the gardener can most readily find them. There are plenty of works on plant-chemistry, some, I think, published at your office; but in practical garden articles I think the subject might be brought home in a more concise manner than is being done, and more to the advantage of those for whom the information is intended.—PRACTICAL.

CHRYSANTHEMUM SHOWS.

So far the exhibitions have proved better than was expected by many growers, but there has been more irregularity in the exhibits than usual, some being of excellent quality, and others of very inferior merit. Both incurved and Japanese blooms have been well shown in the leading collections, but really good specimen plants have not been so numerous as during previous years.

RICHMOND.

THOUGH this was the first Show of the season, and fixed at a somewhat early date—the 10th inst.—even for the south in the present year, and though many had predicted a failure, yet it is satisfactory to record that in number of exhibits and general good quality all the success was attained that could have been desired by the most hopeful of the Society's supporters. As on the last occasion, the spacious and handsome rooms of the Castle Hotel were secured for the Exhibition, one being devoted to the groups of Chrysanthemums, the majority of the specimen plants, the fruit, and a few miscellaneous exhibits, while the other which overlooks the Thames contained the cut blooms and table plants, the small intermediate apartment being appropriated to the vegetables.

Groups.—One class was provided for a group of Chrysanthemums arranged for effect, to occupy a space not exceeding 50 square feet, the prizes being £2 10s., £2, and £1 10s. The competition was extremely spirited, nine groups being entered, forming the chief feature in the first large room. The plants, too, were mostly in good condition, the flowers large, and the arrangement tasteful. But in those that failed to secure a position among the prizewinners the principal defect was the bareness of the front rows, due to the plants employed being too tall. Two feet height of bare stems in the front allowed all the pots to be seen, and imparted a harsh unfinished appearance to some that were otherwise satisfactory. The chief honour was adjudged to Mr. C. Bond, The Gardens, Orford House, Ham, who staged a bright and compact but not crowded group, the blooms being of notable size, and the different colours well disposed. Mr. W. Brown, St. Mary's Grove Nursery, Richmond, was a very close second with a handsome group, the only defect of which was a rather too noticeable approach to crowding; but for this it would have well merited a higher position. Mr. J. Sallows, gardener to J. J. Flaek, Esq., Heddingham House, Twickenham, was third, his plants being very strong and the foliage surprisingly vigorous, but the flowers were scarcely sufficiently numerous, and the arrangement was rather loose.

Specimen Plants.—These formed the weakest portion of the display, not in numbers but in quality. The leading collections were generally satisfactory, but there was considerable disparity in the equality of the second and third-prize plants in most of the classes. In the class for six large-flowering varieties Mr. Sallows was placed first with dwarf flat-trained even specimens, Mrs. Dixon, Mrs. G. Rundle, Julia Lagravère, George Glenny, and St. Patrick being the most noteworthy. All were flowering well. Mr. G. Stevens, St. John's Nursery, Putney, followed with larger specimens, not so formally trained, but bearing abundance of flowers, especially an example of Julia Lagravère, which was very handsome. Mr. J. Coombes, Sheen House, Richmond, was third with small plants. For three standard large-flowering varieties Mr. E. Beckett, gardener to J. P. Currie, Esq., Sandown House, Esher, was the chief prizetaker with neatly trained examples of Mrs. G. Rundle, Mrs. Dixon, and George Glenny. Mr. Sallows followed closely with good plants, but too recently tied. The best single specimen in the large-flowered section was Mrs. Haliburton from Mr. E. Beckett, who was followed by Mr. Stevens with Mr. Brunlees, and Mr. G. Trussler, gardener to A. Cooper, Esq., Thistleworth, Twickenham.

Specimen Pompons were shown in four classes, but the best were those in the class for six specimens trained with single stems. Mr. G. Stevens was first with dwarf neat plants of Lilliputian, Rosinante, Golden and Lilae Cedo Nulli, Mr. Hutt, and Bijou. Mr. W. Brown followed with taller plants, President being very fine. Mr. J. Warstaff, gardener to J. H. Elam, Esq., Firsleigh, Isleworth, staged the finest single specimen—a handsome example of Rosinante, flowering profusely. Mr. J. Coombes followed with Mdle. Marthé, and Mr. W. Brown with President, both good. The above-named exhibitors also secured the chief prizes in several other smaller classes.

Cut Blooms.—The competition in nearly all the cut bloom classes was very keen, two long tables being occupied with the boxes. Three classes were devoted to incurved varieties—namely, for eighteen, twelve, and six. The best stand of eighteen was contributed by Mr. E. Molyneux, gardener to W. H. Myers, Esq., Swanmore Park, Bishop's Waltham, the flowers being of excellent form, but those in the front row were slightly flat, and the others were not large but very neat. The varieties were Miss Mary Morgan, Snowball, Prince Alfred, Princess of Wales, Baron Beust, Mr. Heale, Inner Temple, General Bainbrigge, Princess Teck, Lady Hardinge, George Glenny, Princess Beatrice, Barbarossa, and Eve. The bloom of Inner Temple was one of the best we have seen. Mr. E. Berry, gardener to the Countess of Leven, Roehampton, was second with good blooms, but not quite so even as the first. Nil Desperandum, Rev. J. Dix, and John Salter were admirably represented. Mr. J. Bennett, gardener to F. Rodewell, Esq., Feldheim, Wimbledon, was third with neat blooms. There were five exhibitors. Ten collections were staged in the class for a dozen blooms, and nearly all were satisfactory. Mr. W. R. Strong, gardener to Mrs. Reid, Kenwolde Court, Virginia Water, was an excellent first with very handsome blooms, particularly the examples of Golden Queen, Empress of India, Golden Empress, and Queen of England in the back row of the stand; these were not only large but of great substance and good form. The other blooms were of similar merit. Mr. Elcombs, gardener to F. H. Brown, Esq., Lawn Bank, Teddington; and Mr. C. Slade, gardener to Lady Bowater, Richmond, were second and third respectively with very creditable blooms. Collections of six were well shown by Messrs. W. R. Strong, E. Coombs, and J. Strong, gardener to H. Sweet, Esq., Dornley House, Weybridge, who were the prizetakers among nine exhibitors.

Japanese varieties were represented by several beautiful collections. The best twenty-four blooms were staged by Mr. E. Molyneux, and were greatly admired, being large, of good substance, and bright in colours. The chief varieties were Baronne de Prailly, Peter the Great, Alba Plena, Cry Kang, Mdle. Moulise, Ducal, Peter the Great, James Salter, Criterion, M. Ardene, Hiver Fleur, Bouquet Fait, Elaine, Madame Berthe Rendatler, L'Incomparable, Nympe, Triomphe du Nord, and Red Dragon. Mr. Sallows was a close second with fine flowers but rather looser than the first. Bronze and Red Dragons, Chang, and Nympe were noteworthy. Mr. W. R. Strong was third, his best blooms being Père Delaux and Triomphe du Nord, the former very rich in colour. Five collections were staged. The class for twelve was well filled, eight competitors entering. Mr. G. King, gardener to R. Few, Esq., Esher, was accorded chief honours for excellent blooms of Soleil de Levant, Criterion, Oracle, Cry Kang, and M. Ardene amongst others; Messrs. J. Strong and J. Hill, gardener to A. Savory, Esq., Potter's Park, followed closely. Mr. J. Hill gained the first prize for twelve reflexed blooms, the varieties being Cloth of Gold, Christine, Golden Christine, Mrs. Forsyth, Dr. Sharpe, Phidias, and Chevalier Domage, all of fair quality. Mr. Sallows was a good second, his best blooms being Mrs. Forsyth, William Shipman, Annie Salter, and Mazeppa. Anemone-flowered varieties were not largely shown, nor were they of first-rate quality. Mr. J. Bennett had the best, including Lady Margaret, George Sands, Empress, Prince of Anemones, Fleur de Marie, Gluck, and Mr. Pethers.

Fruit.—Though not so largely shown as last year, fruit of good quality was staged, particularly the Apples and Pears. For a collection of six dishes of fruit Mr. J. Hudson, gardener to H. J. Atkinson, Esq., Gunnersbury House, Acton, was first with well-coloured Alnwick Seedling and Muscat of Alexandria Grapes, neat King of the Pippins and Hollandbury Apples, and Beurré Superfin Pears. Mr. J. Munro, gardener to Lady Chichester, Cambridge House, Twickenham, followed. The best four dishes of Apples among the thirteen collections staged were from Mr. E. Beckett, the varieties being Cox's Orange Pippin, King of Pippins, Emperor Alexander, and Blenheim Pippin, all of even size. Mr. Kinghorn, Sheen Nursery, Richmond, was a very close second with fine examples of Ribston and Blenheim Pippins. Mr. W. Fanning, The Convent, Roehampton, was third. Eight collections of Pears (four dishes each), Mr. G. King winning the premier prize with Marie Louise d'Uccle, Beurré Diel, General Todtleben, and Catillac. Messrs. W. Fanning and Hudson followed in that order.

Vegetables.—In the class provided by the Society for a collection of vegetables, six varieties, the competition was remarkably keen, though the prizes were small. Fifteen collections were staged. Mr. J. Hill was first with creditable examples of Autumn Giant Cauliflowers, Snowflake Turnips, Aigburth Sprouts, Model Cucumbers, Hathaway's Excelsior Tomatoes, and Schoolmaster Potatoes. Messrs. J. Edie, gardener to P. Adie, Esq., Worton Hall, Isham, and B. Murrell carried off the other prizes with clean healthy vegetables.

In addition to the above, table plants were numerous and well

represented, bouquets and stands of flowers also. Several special prizes were offered, the chief being those presented by the Duke of Teck, Baroness de Rothschild, John Hales, Esq., G. G. Meason, Esq., and Messrs. Daniels Bros., for all of which the competition was good. Among the miscellaneous exhibits not for competition were fine groups of Primula and Pelargonium blooms from Messrs. H. Cannell and Son, Swanley; Cyclamens from Mr. R. Clarke, Twickenham, and Messrs. C. Lee & Son, Hammersmith; and wreaths from Messrs. Smith and Larke, Kensington. The general arrangements of the Show were well conducted by Mr. G. Eyles, who is now Secretary to the Society.

CROYDON.—NOVEMBER 14TH.

A pretty show was provided in the small Public Hall by the Croydon Horticultural Society, most of the thirty-five classes enumerated in the schedule being represented by several exhibits. Cut blooms were well shown in all the sections, the Japanese and incurved being particularly good in size, substance, and colour. There was a falling-off in the number of plants and Grapes, but the fruit and vegetables were finer than usual, and altogether the Exhibition was quite satisfactory and creditable to the management of the energetic Secretary, Mr. A. C. Roffey.

Cut Blooms.—The chief class in this section was that open to all England for twenty-four cut blooms, comprising twelve Japanese and twelve incurved. The premier prize was secured by Mr. E. Gibson, gardener to J. Wormald, Esq., Morden Park, who had some very even substantial flowers. His Japanese included Fair Maid of Guernsey, M. Ardene, Criterion, Baronne de Prailly, Peter the Great, Ethel, Hiver Fleur, Cry Kang, Red Dragon, Intea striata, Garnet, and Fulgore. The best incurved were Golden Queen, White Venus, Venus, Golden Empress, Refulgence, Barbara, Prince of Wales, Beethoven, Mrs. Dixon, Mrs. Rundle, Golden Eagle, and George Glenny. Mr. J. Fewell, gardener to J. C. Lanyon, Esq., Birdhurst, was a very good second, his incurved blooms being particularly neat in form. The chief class in the section confined to gardeners and amateurs within a radius of four miles from the Town Hall was that for twenty-four incurved blooms, in which Mr. Fewell was the most successful exhibitor, carrying off the first prize with small very well-formed blooms. Mr. T. Elsey, gardener to D. Cornish, Esq., Dagnal Park, and Mr. J. Johnson, gardener to W. C. Straker, Esq., Hazelsland, followed closely. Messrs. Fewell and Johnson also staged the best collection of twelve incurved varieties. Mr. Fewell won the premier prize for twelve Japanese blooms with good examples of Daimio, Madame B. Rendatler, and Sarnia; Messrs. Elsey and Johnson securing the remaining prizes with smaller blooms. Good collections of twelve large Anemone-flowered varieties were contributed by Messrs. Fewell and Elsey and Johnson. The class for twelve large-flowered varieties shown with foliage as grown was interesting. Mr. Fewell was again the leading exhibitor, having Garnet, Roseum Pictum, and Dr. Masters in good form. Mr. S. Brice, gardener to Mrs. Frith, Addiscombe Road, was a close second, the Anemones Fleur de Marie and Acquisition being the chief flowers. Mr. Edwards, gardener to W. M. Robinson, Esq., was third. For six blooms of any large-flowering variety Mr. Fewell was first with Sarnia. Mr. Waghorn, gardener to Dr. Stokoe, Beddington Park, second with Golden Beverley; and Mr. Edwards third with Alma. In the amateurs' classes some of the chief prizetakers were Messrs. F. Minchener, D. Waghorn, L. Elsey, and Brice.

Only two groups of plants were staged, the first by Mr. J. Woods, and the second by Mr. F. Minchener, both small but well arranged. In the class for three large-flowered plants Mr. F. Green, gardener to A. Burton, Esq., Park Hill Rise, secured the chief award with Queen of England, Cherub, and Christine, both fairly well flowered. The same exhibitor was first with a single specimen of Christine. Mr. G. H. Cooper, nurseryman, Sydenham Road, showed a stand of good blooms including Japanese, Anemones, and incurved. Mr. W. Curd, florist, Addiscombe Road, exhibited a fine bank of Chrysanthemums and a group of miscellaneous plants. Mr. C. Chaff, Park Hill Nursery, Croydon, staged a pretty group of Chrysanthemums and other plants. Mr. W. Carr, gardener to Stephenson Clarke, Esq., Croydon Lodge, contributed a number of neat standard flowers very well, and arranged up the centre of the room. Several table plants and Orchids were also shown from the same garden. Mr. Fewell staged neat specimen Ferns in the class for four, Asplenium marinum and A. myriophyllum being particularly healthy, especially the latter. Primulas were well shown by Mr. C. Welstead, gardener to Mrs. Lodge, and Mr. Fewell.

Fruit.—Apples and Pears were much more largely represented than usual, the quality being good and the entries numerous in each class. For three dishes of Pears Mr. J. Woods, gardener to J. Nickinson, Esq., Sankeston House, Thornton Heath, was first with good samples of Duchesse d'Angoulême, Beurré Colmar, and Beurré Diel. Mr. W. Jones, gardener to J. R. Brougham, Esq., The Bridge, Wallington, and Mr. J. Rodbourne, gardener to Baron Heath, Coombe House, followed closely in that order. For three dishes of dessert Apples Mr. W. Jones was the winner with Blenheim Pippin, Cox's Orange Pippin, and Ribston Pippin, all of fair size; Messrs. J. Woods and Rodbourne being second and third respectively with neat samples. Mr. Jones was also first with kitchen Apples, followed by Messrs. Fewell and Rodbourne. Mr. J. Fewell was accorded chief honours for three admirably coloured bunches of Black Alicante Grapes; Mr.

C. Crouch, gardener to J. Cooper, Esq., Duppas Hill, taking second with large bunches of the same variety, but rather too much rubbed. Mr. Fewell had the only collection of white Grapes—three finely finished bunches of Muscat of Alexandria. Mr. J. Penfold, gardener to the Rev. Canon Bridges, Beddington, contributed a collection of eighteen dishes of fine Apples not for competition. Mr. J. Woods also had a collection of Apples and Pears; Mr. Evans, gardener to Lady Ashburton, Addiscombe Park, staged an interesting collection of Quinces, Oranges, Pears, and Apples, and Mr. C. Chaff sent several examples of Apples.

Vegetables.—Several very satisfactory collections of vegetables were staged. Mr. J. Cooper, gardener to J. C. Macdonald, Esq., Waddon, was accorded the premier prize for well-grown Cauliflowers, Savoys, Parsnips, Brussels Sprouts, and Onions among others. Mr. Fewell was an extremely close second; his Cauliflowers and Savoys being excellent. Mr. Rodbourne was third with smaller examples. There were five entries. Mr. W. Curd also contributed a collection not for competition. Potatoes were shown by Mr. F. Minchener, South Norwood, and J. Johnson. Mr. Gold McKay, West Croydon, contributed a pleasing group of plants, fruit and vegetables.

All the chief exhibits not in competition mentioned above were highly commended by the Judges.

STOKE NEWINGTON.—NOVEMBER 14TH AND 15TH.

A very satisfactory Exhibition was arranged in the Assembly Rooms, the cut blooms and specimen plants being equal to the general style characterising the exhibits at Stoke Newington. Mr. W. Goldsmith, the Secretary, deserves much credit for his energetic efforts to maintain the credit of this old-established Society.

Specimen Plants.—In the class for ten specimen Chrysanthemums Mr. H. Langford, gardener to J. Barnet, Esq., Coleraine House, Stamford Hill, carried off the premier prize with very handsome specimens well grown and bearing some fine blooms. The varieties were George Glenny, Julie Lagravère, Barbara, Madame Marthe, Christine, Mons. Charles Hubert, Lord Derby, Roseum Pictum, Fair Maid of Guernsey, President, all very good. Mr. W. Monk, gardener to W. Fowler, Esq., Forest House, Leytonstone, was placed second with a less even collection, but including several very fine specimens, especially the standards at the back—namely, Fanny, Venus, and The Cossack. Other specimens were also highly creditable to the grower. For the best half-dozen plants of large-flowered varieties Mr. Langford was again the leading exhibitor with very compact vigorous specimens in admirable condition, especially Princess of Wales, Hero of Stoke Newington, and Mr. Corbay.

Standard specimens were a remarkable feature, and were represented by some very handsome plants. Mr. S. Gilbey, gardener to B. Booth, Esq., The Cazenoves, Upper Clapton, won principal honours with four admirably grown and neatly trained specimens of the varieties George Glenny, Prince of Wales, Mrs. G. Rundle, and Mrs. Dixon. Mr. F. Wells, gardener to W. H. Smee, Esq., The Limes, Woodbury Down, was a very good and close second, his plants being trained a little flatter than the other. In the class for four Pompon standards the last-named exhibitor gained the first prize with excellent examples of Antonelli, Bob, Madame Marthe, and Lilac Cedo Nulli, all very well flowered and evenly trained. Mr. Gilbey followed, his two best plants being the dark-coloured varieties Prince Victor and Fanny.

Dwarf-trained Pommpons were similarly well shown by several exhibitors. For five plants in pots not exceeding 9 inches in diameter Mr. F. Wells secured the principal award with highly creditable examples of Sœur Melainie, Prince Victor, Golden Cedo Nulli, and Mrs. Hutt. Messrs. H. Langford and S. Gilbey followed with less evenly trained plants. Only one collection of six Pommpons was staged—namely, by Mr. F. Wells, who was deservedly awarded the chief prize. The plants were flowering most profusely, Fanny, Madame Marthe, Cedo Nulli, and President being the varieties. The best single specimen was exhibited by Mr. Langford—a large example of Peter the Great, 5 to 6 feet in diameter.

Cut Blooms.—The principal class in the incurved section was for twenty-four blooms, in which flowers of very high quality were shown. Mr. S. Gilbey gained the first prize with very even, substantial, handsome blooms of the following varieties—Empress of India, Golden Queen of England, Princess of Wales, Nil Desperandum, Lady Hardinge, White Beverley, Barbara, Hero of Stoke Newington, Antonelli, Golden Beverley, Princess Teck, Mr. Brunlees, Golden Empress, Mrs. Heale, John Salter, Queen of England, Princess Beatrice, White Globe, Refulgence, Jardin des Plantes, Eve, Cherub, and George Glenny. Mr. Martin, gardener to F. Appleford, Esq., The Cedars, Woodbury Down, was second with smaller blooms, but very neat and bright in colour. Mr. R. Payne, gardener to J. R. Crook, Esq., Warwick House, Stamford Hill, was third, the last two collections being very nearly equal in quality. The competition in the class for twelve blooms was keen, and the quality of the blooms good. Mr. E. Young, gardener to G. Thompson, Esq., Stamford Hill, and Mr. G. Langdon, gardener to Drs. Monroe and Morris, Brook House, Clapton, were awarded equal first prizes, the blooms in both stands being of moderate size but excellent in form and substance. Mr. Payne was placed third. Mr. F. Wells' collection was highly commended. Messrs. E. Young, F. Wells, and G. Langdon had the best stands of six incurved blooms among half a dozen competitors. In the Boroughs of Hackney and Finsbury district class Mr. W. Gold-

smith, Grove Road, Stamford Hill, was deservedly placed first with very creditable samples. Mr. J. Broughton, 86, Winstone Road, Stoke Newington, had a good second-prize collection. Mr. D. Monk, gardener to H. P. Leschelles, Esq., The Highams, Bagshot, Surrey, was the winner of chief honours in the open class for twenty-four blooms, staging very neat examples. Equal second prizes were accorded to Mr. W. Monk and Mr. R. Strong, gardener to Mrs. David Reid, Kenwolde Court, Virginia Water, who both exhibited well. Japanese varieties were not largely represented. Mr. W. R. Strong carried off chief honours for twelve with fine blooms, being followed by Mr. W. Monk, who showed his blooms with stem and foliage attached. The prize offered by Mr. G. Peachey, Stamford Hill, for the best bloom of the new *Chrysanthemum Angelina* was awarded to Mr. W. Martin for a beautifully formed flower of that variety.

A very handsome collection of blooms not for competition was contributed by Mr. Thomas Cochrane, Superintendent of Finsbury Park. They were greatly admired, some blooms being unusually fine, especially Princess Beatrice, Barbara, Dupont de l'Eure, and Mrs. Hcale.

BOROUGH OF LAMBETH.—NOVEMBER 14TH, 15TH, AND 16TH.

The bad effects of the present season, so generally regretted, were but slightly apparent at this amateur urban Society's exhibition. The plants were not quite so numerous as usual, perhaps, and in some of the smaller classes for cut blooms the quality was not quite up to the usual standard. In other respects there were few notable defects, and the members and exhibitors deserve much credit for the satisfactory results obtained in such a crowded district of the metropolis. The past season has been an unfortunate one for the Society, as it has lost two of its leading officers—namely, Mr. James Wilsher and Mr. Thos. Summers, who held the posts of Treasurer and Honorary Secretary respectively, and who by their efforts had contributed greatly to the establishment and prosperity of the Society. Messrs. W. Halstead and J. R. Crisp now hold the positions of Treasurer and Secretary.

Specimen Plants.—The chief feature of the display were the groups of twelve *Chrysanthemums*, and in the class devoted to these Mr. W. Clarke gained the leading prize with good examples of Pompons and Anemones, the former being very well flowered and healthy. Mr. Ball followed with taller plants, and Mr. Tracy with others rather irregular. Six very well grown standards were shown by Mr. Tracy, the heads being neatly trained, and the flowers though small of good form. The same exhibitor had the best three standards, very similar in condition to the others. Mr. Fill secured the leading prize in the class for six pyramid Pompons, chiefly Anemones, healthy, but not with very large flowers.

Cut Blooms.—The principal collections of incurved varieties were those in the class for twelve dissimilar blooms. Mr. Ball won the premier award with very neatly formed blooms of Prince of Wales, Golden Beverley, Mrs. Haliburton, and Hero of Stoke Newington among others. Messrs. Little and Tracy secured the second and third prizes in the class in that order. The blooms shown in the class for six incurved were rather small, but the competition was keen, nine stands being shown. Messrs. Ball, Halstead, and Little were the prizewinners in that order. Japanese are always well represented at this Show, and the present occasion was no exception to the rule. Mr. Tracy won chief honours with a neat and creditable collection of twelve, of which Fulgore, Royal Soleil, Arlequin, and Orphée were the best. Mr. Ball was a close second, his blooms being very richly coloured. Mr. Crisp was third with neat samples. Five collections were staged. In the class for six Japanese varieties six stands were contributed, Messrs. Ball, Howett, and Tracy winning the prizes. Anemone Pompons were represented by four stands, the blooms being good. Messrs. Ball, Clark, and Fill were the only exhibitors. Three blooms of *Chrysanthemum* Mr. Bunn were shown by Mr. Ball. This variety is a root sport from Beverley, raised by a member of the Society in 1874.

A fine bank of flowering plants, Palms, and Dracenas was contributed by Messrs. J. Laing & Co, adding much to the interest of the Show.

WALTON AND WEYBRIDGE.—NOVEMBER 15TH.

Though, perhaps, this Show was not quite equal to some that the Society have held, yet it was very creditable to the exhibitors, and some of the collections both of plants and cut blooms were excellent. As usual Mr. Masters had arranged the exhibits to the best advantage in the three rooms devoted to them at the School, producing a very pretty effect. Taking the classes for large-flowering varieties first, the chief class was

Specimen Plants.—For six plants, dwarf-trained, the leading exhibitor was Mr. Cornhill, gardener to E. Pettitt, Esq., Oatlands, who staged beautifully trained, even, healthy specimens bearing good substantial blooms. The varieties were Venus, excellent; Mrs. Dixon, handsome; Mrs. Haliburton, very good; Prince of Wales, superbly flowered; G. Glenney and Baron Beust, both compact and neat. Mr. Lavay, gardener to Mrs. Wilson, Walton, was second with looser and taller specimens but well flowered, James Salter being especially fine. The best four was staged by Mr. Polley, gardener to Mrs. Rogers, Oatlands—very vigorous and neatly trained specimens. Faust was one of his best plants. Mr. Millican, gardener to Mrs. Cobbett, Walton, was a very good second, but the varieties were not so distinct as in the first. Standards were well shown by several ex-

hibitors, Mr. Millican carrying off the chief prize for four rather loosely trained examples, but bearing large and well-formed flowers. Mr. Polley followed closely with Gloire de Toulouse, the best plant being very well flowered, but a bad example of Venus spoiled the collection. Mr. Cornhill had the best single specimen—Mrs. G. Rundle, admirably grown; Mr. Lavay followed with the same variety.

Pompon varieties constituted a pleasing feature, the plants being compact and the blooms abundant. Mr. Cornhill was accorded chief honours for six specimens, trained flat, 3 to 4 feet in diameter, and as well flowered as could be wished. Astrea, Aurore Boreale, Marie Stuart, and Judy were the best varieties and the finest plants. Mr. Millican was placed second with taller and less compact specimens, the stakes being also rather too prominent; otherwise the plants were creditable examples, especially President. Messrs. Lavay, Polley, and Reed, gardener to C. H. Ledward, Esq., Weybridge, were the prizewinners in the class for four dwarf Pompons, but their productions were not first-rate. Mr. Polley contributed four very good standards, easily gaining the chief prize with Madame Montels, Marguerite de Cox (fine), Antonius, and Marie Stuart. Mr. Millican followed. For two standards Mr. Lavay was the premier exhibitor, having neat specimens of Marguerite de Cox and Stella well flowered. Mr. Polley was awarded the prize for the best single specimen Pompon, an example of Antonius.

Cut Blooms.—These were good generally, and in some instances specially fine. For twenty-four incurved Mr. Burrs, gardener to H. H. Rigg, Esq., Hersham, was the principal winner with even blooms of fairly good substance, including particularly fine examples of Empress Eugénie, Mr. Corbay, Faust, Rev. J. Dix, Lady Slade, Barbara, and Nil Desperandum. Mr. Cornhill secured the second position with blooms of a little less substance generally, though Baron Beust, Barbara, and Lady Talfourd were well represented. In the open class for the same number of blooms Mr. Strong, gardener to Mrs. Reid, Virginia Water, occupied the leading position with handsome specimens of Empress of India, very fine; Barbara, good; Mr. Brunlees, Golden Empress, Princess of Wales, and John Salter among several others of good quality. Mr. Burns secured the second place with blooms very little inferior to the first. Mr. Hill, gardener to H. Savory, Esq., Chertsey, was a good third with neat examples. Good collections of twelve incurved blooms were shown by Mr. Strong, gardener to H. Sweet, Esq., Weybridge; Mr. Boxall, gardener to T. A. Hickley, Esq., Walton; and Mr. Millican, the competition being keen in that class. Reflexed flowers were shown by Mr. Cornhill in satisfactory condition, the twelve for which he gained the first prize including Chevalier Domage, Dr. Sharpe, Julia Lagravère, Ariadne, and Christine, all fine. Mr. Millican had a neat second-prize stand, and Mr. Lavay took the third honours.

Japanese were strongly and well represented. The leading collection of twenty-four was staged by Mr. Brown, who had excellent examples of Soliel Levant, The Daimio, Garnet, Criterion, Baronne de Prailly, Père Delaux, Cry Kang, Chang, Ethel, and Apollo. Mr. Cornhill followed with smaller blooms, but very fresh and bright. Messrs. Strong, Millican, and Boxall staged very clean collections of twelve blooms, securing the prizes in that order.

For twelve bunches of Pompons, not less than nine varieties, Mr. Polley was successful in obtaining the chief award. The blooms were even and of good substance, the leading varieties being President, Model of Perfection, Golden Cedo Nulli, and Madlle. Marthe. Messrs. Lavay and Cornhill were second and third respectively with creditable collections. Mr. Cornhill was the premier exhibitor of twelve Pompon Anemones, his stand including Antonius, Firefly, Mr. Astic and Aster in fine form. Messrs. Lavay and Polley were the other prizetakers. Large Anemone blooms were not so well shown as usual, Messrs. Cornhill and Millican being the prizetakers with only moderately good flowers.

The special prizes offered by the Committee for the best twelve incurved blooms of two varieties were adjudged to Mr. Strong for Golden Empress and Lady Hardinge, very handsome and large, and to Mr. Cornhill for Baron Beust and G. Glenney. The prize for two *Chrysanthemums* grafted with not less than two varieties was obtained by Mr. Millican, each of his specimens being three or four distinct varieties. Dr. McDonald also presented a special prize for two hanging baskets of *Chrysanthemums*, several tasteful arrangements being contributed. Special prizes were offered by Messrs. Wilson of Walton for two standard Japanese *Chrysanthemum* plants, Mr. Lavay taking the first position with Elaine and Red Gauntlet, very finely flowered. Mr. Millican took the second position with much looser plants, but fairly good in flowers. Stands of flowers and bouquets were well shown by Mrs. Cornhill, Mrs. Cobbett, and Mrs. Wardel, also by Messrs. Plowman, Burns, Millican, and Cornhill.

PUTNEY.—NOVEMBER 16TH.

Four years have now elapsed since this Society was formed, and each year the shows have been so good that it must now be regarded as firmly established. The present Exhibition, as heretofore, was held in the Assembly Rooms, and never before has the large hall been so attractively and meritoriously furnished. *Chrysanthemum* plants, cut blooms, table plants, stove and greenhouse plants, fruit, and vegetables were all represented in a manner creditable alike to the cultivators and the district. The groups of *Chrysanthemums* have perhaps never been surpassed, especially those arranged by Messrs. Mahood & Son and Mr. Stevens, and the contest between

them for the cup was extremely keen. The former exhibitor was, however, successful; but Mr. Stevens' group was, perhaps, the best we have seen occupying a secondary position. The plants in both showed high cultivation, being strong in growth, with excellent foliage and grand blooms. It is not necessary to enumerate the varieties, but highly noticeable in the first-prize group was the surpassingly rich Japanese L'Incomparable, fine tasselled rosy-salmon-coloured blooms of Triomphe de Challet, and some seedlings. It may be stated here that Messrs. Mahood secured the prize in the class for seedlings with an unnamed variety bearing some resemblance to Meg Merrilees, but with more thread-like florets, the bloom being very large. Mr. Bennett, gardener to H. Rodewald, Esq., Wimbledon, had the third prize in the chief class for groups. The specimens on the whole were not equal to the untrained plants, still some good examples of culture were staged. Mr. Stevens was the premier exhibitor, followed by Mr. Hoskins, gardener to J. Williams, Esq., Putney. The chief prize for a large-flowered specimen plant was won by Mr. Bentley, gardener to Sir Thomas Gabriel, Bart., Wimbledon Park, with a fresh and good Mrs. Dixon; Mr. Stevens following closely with Christine. Mr. Hoskins was an easy first in the class for single specimen standard plants with Mrs. Halliburton with grand blooms, also for six and three Pompons respectively, staging among others Golden Madame Marthe, Marabout, and President excellently. The first variety named is no doubt worth the attention of all cultivators. Mr. Tite, gardener to Mrs. Reid, Putney Hill, and Mr. Bentley had the remaining prizes for standards; and Mr. Ansell, gardener to G. Reid, Esq., Putney, for six and three Pompons respectively with healthy, informal, creditable examples. Messrs. Hoskins, Ansell, and Stevens had the prizes in the order named for single specimen Pompons, the best plant being St. Michael, a semi-glohe $4\frac{1}{2}$ feet in diameter.

Cut blooms were not so remarkable for size as for freshness and evenness throughout the classes, and there were but few points between the respective prizewinners. In the class for twenty-four blooms Mr. Holmes, gardener to A. B. Hill, Esq., The Hawthorns, Clapham Park, secured the first position. This stand contained the premier bloom in the Show—Golden Empress of India; very fine also were Mrs. Haliburton, Empress of India, Princess of Wales, and Prince Alfred. Mr. Berry, gardener to the Countess of Leven and Melville, Roehampton House, was an excellent second; and Mr. Handley, gardener to Miss Pearson, Wimbledon, third. In consequence of the crowd round the boxes we did not obtain the names of the winners in the class for twelve blooms. For six blooms Messrs. Bentley, Lyne, and Berry were the successful competitors. For six blooms of Anemones the prizes went to Messrs. Berry, Bennett, and A. Holmes, all of whom exhibited well.

In the class for twelve Japanese blooms there was excellent competition, Messrs. Stevens, Berry, and Bentley being awarded the prizes with stands of nearly equal merit. Mr. Stevens's stand contained a huge Criterion, a brilliant Mons. Lemoine, and a fine Meg Merrilees; Mr. Berry having La Nympe, superb, and Mons. Ardene, remarkably fine. For six blooms Mr. Bentley was first, Mons. Delaux being rich, and Mons. Ardene and Fulgore very good. Mr. Lyne, Wimbledon, was a very close second, Peter the Great and Berthe Rendatler being his most noteworthy blooms. Mr. Stevens was an excellent first for twelve Pompons, followed by Messrs. Bennett and Haines with stands of nearly equal merit.

Prizes were offered for stove and greenhouse plants, which were won by Messrs. Stevens first, Hoskins and Woodhams equal second, and Mr. Bentley third. The finest plant in these collections was a splendid example of Dendrochium nobile from Mr. Hoskins. Table plants were numerous and excellent, but were difficult to judge by being crowded, and it was still more difficult to ascertain the names of the prizewinners. Mr. Bennett was, however, first with superior examples. For Zonal Pelargoniums Mr. Brierley, gardener to Miss Joppin, was first with very dwarf floriferous plants, five out of six consisting of Vesuvius and its varieties; and for Primulas, which were fresh and good, Messrs. Woodhams and Newell were the most successful exhibitors. Ferns were of superior merit, especially those from Messrs. Martin, Stevens, and Bridal, who obtained the prizes. Mr. Bridal also obtained the first of Mr. Pitt's prizes for mixed groups of plants, followed by Messrs. Hoskins and Mahood.

Fruit was better than on any previous occasion at Putney. Mr. R. Holmes had the chief prize for black Grapes with Alicante superbly finished, Mr. Bennett second with Mrs. Pince well coloured, and Mr. Alderman, Elm Court, Mitcham, third with Alicante; the last-named exhibitor had the first prize for excellent Muscats, followed closely by Mr. Bentley, who had also the first prize for dessert Apples—King of the Pippins, Blenheim Pippin, and Boston Russet, Messrs. Haines and Heading taking the remaining prizes. This was a very good class, as was the corresponding one for kitchen Apples, in which Messrs. Haines, Bridal, and Woodward secured the prizes as named.

Collections of vegetables were very fine, especially those of the prizewinners Messrs. Coombes, Sheen House, Bridal and Woodward, who staged produce that is seldom excelled at any exhibition.

The Show was admirably managed by Mr. Stevens, the competent Secretary, Mr. Moore and Mr. Pitts, and was worthy of the patronage of the visitors who crowded the Hall during the afternoon and evening.

ADVICE TO YOUNG GARDENERS.—I have read with pleasure Mr. Elliott's excellent communication on page 433. I am afraid it is too

true that many young men only study their present fancies and do not think sufficiently of the later years of their life. I left a small place for a larger one, where I could acquire more experience, but received less wages. I am glad to say that I am within reach of a night school which I attend three nights a week, and the other nights I study at home. I am learning geometry and Latin, besides the usual school routine. I read and study Thompson's "Gardeners' Assistant" and Forsyth's book on "Fruit Culture," which, though old, I think good. I read this Journal every week, and I find it very instructive; but I think contributors might give their experience with less "personalities" sometimes. I have never previously contributed to a paper, and I do so now to thank Mr. Elliott and Mr. Pettigrew for the good advice they have given, so I hope older and wiser men will not look down on me for writing this.—A YOUNG GARDENER.

TEMPERATURES FOR GRAPES.

I HAVE no wish, and do not need to adduce other people's practice to substantiate my own; but I desire to state that Mr. Barker (page 422) is wrong in stating that Mr. Taylor's temperatures are much above mine. Practically there are no differences between them, except that while Mr. Taylor's fall 18° below the maximum temperature and 13° below the minimum recommended for Muscats by high-temperature practitioners at the flowering period, I allow 7° lower still, minimum, by fire heat. After flowering our figures are the same, only I go a little above Mr. Taylor in day heat at starting and after flowering. It must be remembered also that the Longleat vinery is described as span-roofed. With regard to the time of our Grapes ripening, that has nothing to do with the matter. I ripen all our late Grapes at the end of September in preference to a month earlier, and any of your readers who care to refer to back volumes of your contemporary the "Gardener," will find that I have on more than one or two occasions stated as much and recommended the practice.

It must also be borne in mind by those who say fire heat is needed in September to make up for low night temperatures in the corresponding month in spring—April, that the night temperature of September is very considerably higher than April, necessitating less fire heat. Further, low night temperatures are practised by me for several months at the earlier stages in February, March, and April at least. Is all the coal saved by proportionally low temperatures during all that time used in September, may I ask? and if not, when? I am perfectly sure we save coal and much of it. I am sure also that I could ripen our Muscats as soon as other people by a higher day heat alone, and may do it for experiment's sake. There is another thing to be considered. It has been stated by good authorities, Mr. David Thomson for example ("Gardener," 1877, page 148), that "Black Hamburgs as a rule colour best in a low night temperature," and I am of opinion that Muscats do also; indeed I cannot see why the rule in one case should not hold good in the other, proportionally, so long as the sun heat is made the most of.

Some of your correspondents, of which Mr. Barker of Hindlip is an example, call on their opponents to "come to the exhibition table," and show what they can do. Will those gentlemen produce their own record of victories in fruit exhibition? If they will do this I shall be pleased to produce mine, and then we shall see who has most reason to rely on that test. I am acquainted with the names of the prizewinners at our noteworthy horticultural shows for twenty years back at least, and I cannot remember that the names of some of those who have identified themselves with this discussion, and against me in this paper and elsewhere, have been so much as recorded once, and under these circumstances it hardly becomes them to trade upon other people's successes. Moreover, I have no doubt Sheffield gardeners will be glad to meet them at Handsworth. The prizes are better than are offered at Edinburgh, and as good as the best provincial shows, except Manchester, and the exhibition is patronised by such places as Thoresby, Welbeck, Osberton, Ossington, Worksop Manor, Grimstone Park, Bagot Park, and many others in England, besides your humble servant, who when he was in the habit of competing there regularly (he may be excused mentioning), carried off the £8 cup twice, and an equivalent prize in money the third time for fruit, out of a possible five times, the main feature of his exhibit on each occasion being Grapes and Pines, both grown on the cool system. I will say nothing of other shows at present. Will your correspondents who have written lately pick up the gauntlet and do battle?—J. SIMPSON, *Wortley*.

THIS subject has been much discussed in your columns of late, and I have no doubt that good will result from it. I do not wish to enter into the controversy in a condemnatory spirit regarding

either the high or low temperatures, any further than to say that I do not agree with such low temperatures for Grapes during their flowering period as some writers advocate. I consider they go too far when they recommend a night temperature of 50° for Muscats in flower, unless the temperature be proportionally high by day. What I should recommend is that the night and day temperature be recorded when writing on this subject, as they are both equally valuable to the Grape-grower. I think the saving in coals is a very small matter to consider, and will neither greatly benefit the private grower nor the grower for market. I will confine myself to a few remarks on my own experience during the past season.

All Grape-growers are aware that early-started Vines require to be brought forward more gradually than those started later in the season. High temperatures with early Vines mean small wood, poor foliage, and on the whole badly finished Grapes. At least I have found it to be the case during my experience amongst Vines. If the Vines are in healthy condition at starting they may, with judicious management, bear the strain of hard forcing for a few years. I only use a thermometer in the early house, as a rule. This season I placed one in each of the late houses during the flowering period. One of the late houses contains four varieties of Grapes—Muscats of Alexandria, West's St. Peter's, Black Alicante, and Lady Downe's. This house I tried with a low temperature, with the result that I am determined never to try the same again. Black Alicante set very well; the other varieties are unsatisfactory, especially the Muscats. The temperature of this house was sometimes as low as 50° in the morning, and never higher than 65° by day, unless with sun heat, when it was allowed to rise as high as 80° or 85°. The other house contains two varieties—Lady Downe's and Black Alicante. This was treated in the usual way. At the time the Vines were flowering the night temperature was never lower than 60°, rising by day according to the weather, and a better house of Grapes I never desire to have. The bunches are good in shape and size, large in berry, well finished, and as black as Sloes.

When I took charge here a little over four years ago, those Vines were condemned to be taken out. As they were comparatively young Vines I advised my employer to retain them; we did so, and the result is far beyond my expectation. Both houses were started at the same time, the 1st of February. In that where the low temperature was maintained the Grapes are not all fully ripe yet, and judging by appearances the Muscats never will be. In the other house they were all ripe by the middle of August, and I am sure will keep longer in good condition than those ripened later. I have found that Grapes well ripened by the end of August will keep for a longer period in good condition in the Grape room than those ripened during September and October. I cut all our Grapes on the 21st of December last year, and I sent them in regularly in good condition every day until the 26th of May in the present year. I kept two bunches of Lady Downe's in fair condition till the first week of July. They were sent in with those cut first from the early house, the old a little shrivelled, but in flavour they were pronounced to be excellent.—J. MCKELVIE, *Leadenham*.

DAHLIAS IN POTS.

HOWEVER beautiful Dahlias are when grown in the borders, they bear no comparison with those flowers produced by plants in pots under glass. Unfortunately the Dahlia season outside is often cut short by early frosts. But when plants are in pots their period of blooming can be greatly extended. They are invaluable just before Chrysanthemums or Camellias are plentiful. Even if blooms of the plants mentioned exist in quantity, Dahlias are still worthy of a place, as they are distinct and very showy, and some of the single scarlets possess a brilliancy not to be found in Chrysanthemums. I think some varieties of Dahlias will soon rank amongst our best flowers for conservatory decoration at this season of the year. The singles are most suitable for cutting, and when arranged with other flowers are light and elegant. Those that have not grown them should give a few plants a trial another year, and I feel confident they will not be disappointed with the results. From my experience of them in pots they are more easily grown than Chrysanthemums, and not half so liable to lose their foliage.

When the necessary stock for outdoors has been rooted, a batch of cuttings can be taken for growing in pots. They may be established in 60's and hardened off by the time it is safe to plant outside. The plants to be grown in pots can be transferred from the small size to those 10 or 12 inches in diameter, and secured to a strong stake. They can be grown outside, and need but little attention beyond abundance of water, and liquid manure when the pots are full of roots. The shoots will need pinching from

time to time to remove the flowers, discontinuing the practice according to the time the plants are wanted to bloom. The pots mentioned will be large enough for good specimens. They can remain outside until the approach of frost, when they must be housed at once.

I have now some plants in full flower and others later of a variety called White Aster. This is a gem for pots, the flowers being pure white and very freely produced. The blooms, which are beautifully fimbriated, are a purer white when opened under glass than when produced outside. For church decoration the blooms of this variety are unsurpassed. *D. Juarezii* is a curiosity amongst Dahlias with its double Cactus-shaped flowers, which are of a rich crimson colour and quite distinct from any other double variety. This is a strong and bushy grower and well suited for pots. This variety is largely grown in Mrs. Macrae's garden by my friend Mr. Woodfield, and is truly grand indoors. The single variety Paragon is very fine indoors; the beautiful colours of the flower come out so bright, which are rich dark velvety maroon with a shade of purple round the edge of the petal, the centre being yellow. *D. Cervantesii*, orange scarlet; *D. lutea*, yellow with dark centre; *D. coccinea*, rich scarlet, a showy variety and very striking; *D. glabrata*, much smaller in the flower than the above, and not so showy, and yet worth a place for the lilac colour of its flowers; *D. alba*, as its name implies, has white flowers, and is most useful for cutting. The varieties mentioned are all good for growing in pots for indoor decoration.

There can be no doubt that the single forms are by far the most beautiful and useful for cutting, White Aster perhaps excepted for some purposes. The single forms can be readily raised from seed, and I have seen, amongst a number of seedlings grown in the garden above referred to, some beautiful varieties. One was especially good and distinct, being striped like a Carnation.—W. B.

FRUIT TREES IN COTTAGE GARDENS.

JUDGING from the majority of cottage gardens throughout the country, I think it may safely be asserted that fruit-tree culture is neglected as a rule. In many a large old Apple or Pear tree may be seen, but a healthy plantation of young trees can hardly be found. One or two new trees may be bought-in to take the place of an old one that may be dying, but planting or cultivating with a view to profit is seldom thought about. According to what I have been told and have seen, nothing is more profitable in any cottage garden than a number of useful fruit trees; and if every cottager planted a few good varieties of Apples, Pears, and Plums, but especially Apples, in their gardens, beauty, interest, and profit would be added to their homes.

The best of fruit trees can now be bought very cheaply, and when once bought and planted little further outlay is necessary; and with some kinds, such as Lord Suffield, King of the Pippins, Keswick Codlin, and Hawthornden Apples, and the Victoria Plum, crops can almost be depended on annually. In my neighbourhood fruit trees in cottage gardens are not plentiful, but those who have them often pay their house rent or more with what is derived from the fruit they sell. This must be regarded as a clear gain, as no annual outlay is needed, and the trees can generally be grown along the sides of paths and in corners without interfering in any way with the ordinary crops of vegetables. We feel sure if a number of suitable fruit trees were planted in every cottage garden throughout the country they would prove most valuable to the owner.

From the excellent fruit notes which have lately been published in these pages information respecting fruit trees of the most trustworthy description may be learned from all parts of the country; and I would advise all cottagers and amateurs thinking of planting fruit trees to draw their information respecting varieties from this source according to their locality.

Local nurserymen, too, can always give good advice on this subject, as it is seldom they grow any varieties but those which they have proved to be most suitable to the district. In all cases we recommend that only good healthy young trees be planted. Excellent specimens of the kind we mean may be had from 2s. to 3s. each. Now is the time to plant, and cottagers should take the hint.

In selecting positions for fruit trees care should be exercised that they are not placed too close together, or too near the paths, or very much in the shade; nor do they require the very best part of the garden, as very often a few barrowloads of good loam placed in barren places will prove an excellent site for a fruit tree. Nothing surpasses fresh loam for fruit-tree culture, and the great majority of cottagers can easily secure this. In planting young trees it is important that they be made quite firm, and to insure this it is always well to stake every one securely as

it is planted. The thoughts of after culture and future difficulties need not deter the most inexperienced from planting, as if good varieties and trees are secured they will succeed in a surprising way for years without any pruning. The most fruitful trees we possess are those which have never been pruned since they were had from the nursery thirty or more years ago; and they require no more attention than the Oaks in the forest, and yet they hardly ever fail to bear a crop of fine fruit. Facts like this make us still more anxious that cottagers should enjoy the great advantages of having a few fruit trees, and we hope that abler pens will help in this good cause.—A KITCHEN GARDENER.

HAWARDEN CASTLE.

SEVEN miles from Chester and two and a half miles from Broughton Hall station, on the Mold and Denbigh line, Hawarden Castle is situated. The drive from the station is a pleasant one, and the greater portion on each side belongs to the owner of the Castle, the Right Hon. W. E. Gladstone, M.P. The forest

trees all along the route appear to be in luxuriant health, and many of them are of large size. The views over the landscape must be grand when the trees are clothed with foliage. The Castle is a noble building, and stands some 700 to 800 feet above the level of Chester, and was, I believe, built during the eighteenth century. On the south side is a magnificent specimen of *Magnolia grandiflora*, which covers a large space, and has reached a height of 50 to 60 feet up the Castle walls. This growth has been made since the winter of 1860-61, when the tree was cut down by the severity of the weather to within 2 feet of the ground. The injury done to it last winter was comparatively little. A short distance from this fine *Magnolia* stands a large old *Camellia*, the health of which shows the hardiness of these shrubs. From this front of the Castle a grand view of the park can be obtained, which is well wooded, undulated, and picturesque; indeed it is a question if a more magnificent park can be found in any portion of the country. The trees mostly stand singly, and must either have been judiciously planted or Mr. Gladstone has applied his axe in time. The individuality of the trees is a great feature

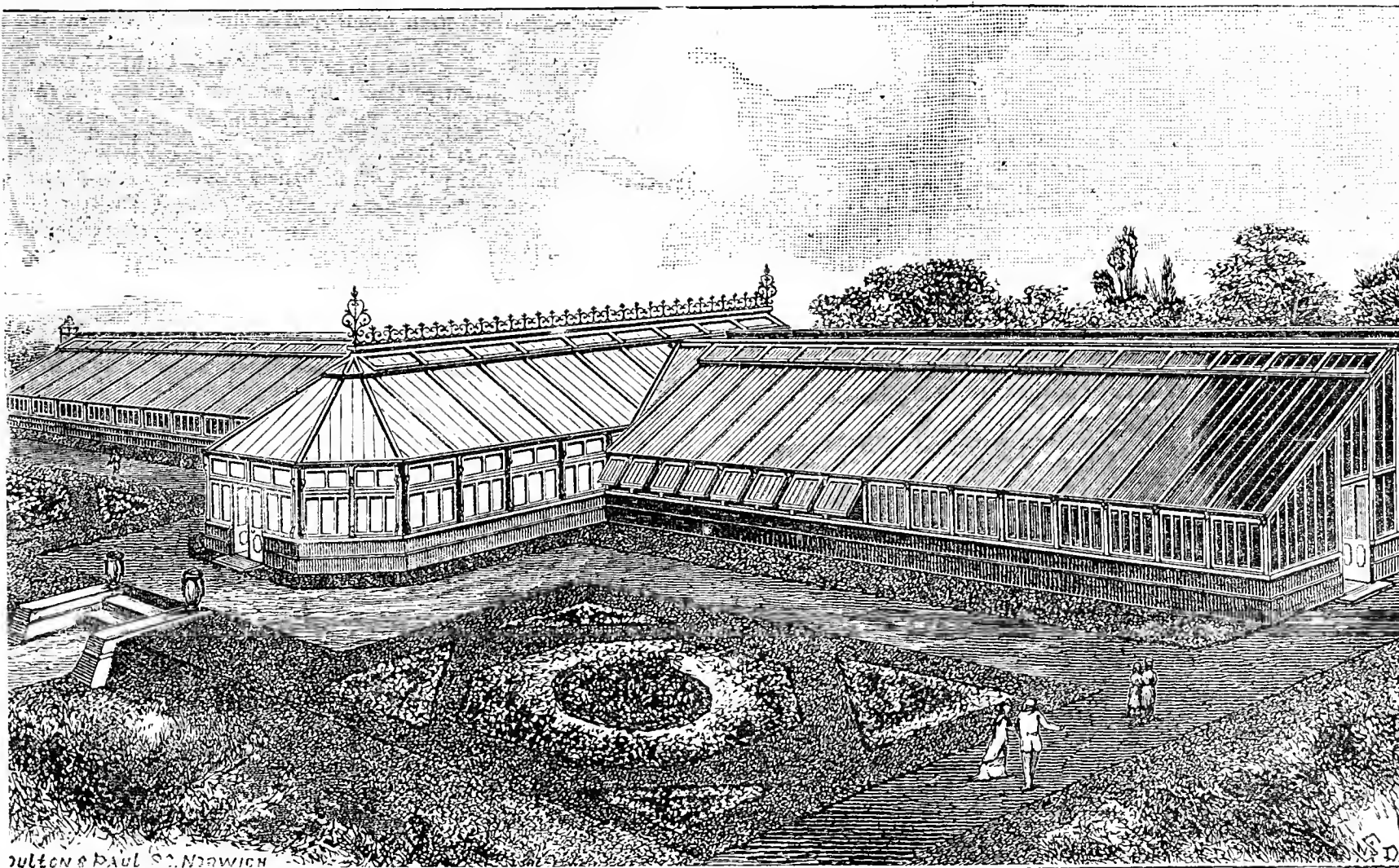


Fig. 73.—GLASS RANGE AT HAWARDEN.

both in the woods, park, and pleasure grounds. Many of them are of large size, and their branches sweep the ground. The late storm has not done so much damage as in many places, yet several monsters have succumbed under its force. In the pleasure grounds stand two very large Limes, their stems being about 3 feet apart, and yet joined together about 5 feet from the ground. Whether they have become united naturally or artificially I am unable to say; however, they are curious and interesting.

Some little distance from the Castle now occupied stand the ruins of the old castle. The ground appears to have been raised artificially; if so, the work was one of great magnitude. These ruins present such a natural and beautiful appearance that I cannot attempt to describe them. From the top the country for miles round can be seen—Chester, as well as the Duke of Westminster's fine seat, and all other prominent features of the neighbourhood. The hillside is covered with trees, which hide from view the ruins from the park. Below is a small running stream, which ripples and winds through the park and woods, and adds to the beauty of the scene. One side of the ruins is covered with Ivy, and the tree variety has established itself on and amongst the walls, and in many instances has attained a large size. No

attempt is made to keep the grounds in the vicinity of the ruins neat and trim; in fact, the greater portion of the grounds are of such a nature that they would be spoiled by dressing and keeping. Some large specimen Hollies 30 to 40 feet high have been allowed to develop naturally, and now look gorgeous laden with their red coral berries. Large clumps of Rhododendrons and other flowering shrubs abound in various positions, and must look gay when in flower as seen from the Castle.

The flower garden is in close proximity to the Castle on the south side, and is laid out with Box. The beds are a fair size and numerous. The design is neat, and the effect must look gorgeous during the summer season.

The glass is situated in the kitchen garden but is not extensive. The principal range (fig. 73) is being rebuilt by Messrs. Boulton and Paul of Norwich. The new range is 170 feet in length. The centre house forms a conservatory for large *Camellias* and *Palms*; this house is 50 feet by 28 feet, and faces the centre walk leading to the west point of the Castle. The lean-to houses, four in number, are each 35 feet by 16 feet, and form one early vinery, one vinery for Muscat of Alexandria, and a third for late crop; the other house is for Peaches. The houses on the left of the con-

servatory were erected last autumn. The conservatory and other houses are now nearly completed. The whole are heated by a check-end saddle boiler. In the rear are new offices, night and day rooms for the men, potting houses, fruit rooms, &c., extending the entire length of the range. The houses are arranged from plans prepared by Mr. Forsyth, and they are light, airy, and well constructed, in fact all that can be desired for the purposes for which they are intended. The young Peach trees have made luxuriant growth and have ripened their wood well. The old Vines are retained in one of the houses, and young canes from them are being trained between to take the place of the old ones in a few seasons. These Vines have made good growth in spite of their exposure outside to the severity of last winter when the house was being built. Mr. Forsyth informed me these old Vines had improved wonderfully since a quantity of fresh soil had been placed to their roots.

The fruit trees in the kitchen garden and on the walls are very old, but young trees are being planted, and others have attained a fruit-bearing condition. With these brief notes I must leave the gardens and grounds I had so long wished to see, and thank Mr. Forsyth for showing me through them.—VISITOR.



THE "HORTICULTURAL DIRECTORY," now in the twenty-third year of its publication, will be ready on the 23rd inst. Price 1s.

— IN addition to the four CHRYSANTHEMUM SHOWS that are held to-day (Thursday)—namely, Kingston, Westminster Aquarium, Tunbridge Wells, and Brixton, and which have been mentioned in a previous note—we have received information respecting the following fixtures, which will conclude the exhibiting season. Manchester, Southampton, and Northampton, 22nd and 23rd inst.; Maidstone, Birmingham, and Wimbledon, 23rd inst.; Wellingborough, 25th and 26th inst.; and Liverpool, 30th inst. As the southern exhibitions have so far proved better than was expected, we may reasonably hope that the northern shows will fully maintain their credit.

— A SCOTTISH correspondent desires to ask Mr. Jefferson if he tasted the ALNWICK SEEDLING GRAPES to which he awarded the first prize at the Handsworth Show, and if so, if he would be kind enough to state their quality. Our correspondent further asks if "SINGLE-HANDED" will be good enough to say where the Grapes were grown under the cool system that he has intimated were of excellent quality as staged at the late show at Edinburgh.

— A CORRESPONDENT recommends the following ZONAL PELARGONIUMS FOR WINTER, that he says contribute greatly to the effect of the conservatory at Norris Green, which is now gorgeous. The varieties that are extra fine are Vesuvius, Wonderful, Madame Thibaut, White Vesuvius, Apple Blossom, Sophie Birkin, and Fanny Catlin.

— THE finest Japanese Chrysanthemums in the Richmond Exhibition was PÈRE DELAUX, a variety introduced about three years ago. Mr. Strong, from Virginia Water, exhibited four beautiful blooms in different stands, which were much admired. The colour is a bright velvety red, a few florets having a slight turn-over. This fine Japanese variety is recommended to the notice of Chrysanthemum fanciers.

— ONE of the most beautiful trees in the autumn is LIQUIDAMBAR STYRACIFLUA, which might be much more frequently planted with advantage to the possessors of gardens, for at all times there is a pleasing lightness and gracefulness in the habit of the tree that admirably suits it for a position

on lawns. [During September and October last the specimens of this tree in the neighbourhood of London have been very bright, the neat and deeply cut leaves assuming rich tints of rose, crimson, and yellow, which, combined with the bright green of the unchanged portion, had a beautiful effect. In the sunlight the trees appear to be illumined by a soft rosy light that is especially noticeable towards evening when the sun is getting low.

— "INQUIRER" writes—"I have read your report of the MEETING OF THE FRUIT COMMITTEE OF THE ROYAL HORTICULTURAL SOCIETY HELD AT CHISWICK, and I observed that second-class certificates were awarded to some new Potatoes which had been grown in the garden. Can you inform me what is the value of a second-class Potato when so many first-class varieties are to be obtained? The number of Potatoes that are now being forced upon the market is so great that we can surely dispense with any that are only worthy of second-class certificates."

— "A GROWER" writes that "the Pompon CHRYSANTHEMUM ROSINANTE is one of the really useful varieties for decorative purposes. It is free in habit yet compact, and bears its white rose-tinted flowers in dense clusters. I grow a number of small plants in 32-size pots, and find them most valuable for the conservatory during the present month. The neat clusters of flowers are well suited for cutting, as they are not too large, and the delicate tint is most pleasing when they are arranged with brighter-coloured varieties."

— THE example of SALVIA PITCHERI, shown at the last meeting of the Royal Horticultural Society from the Chiswick Garden, was deservedly admired by many visitors, and it would be difficult to display the beauty of the plant to better advantage. Single plants are rather slender in their growth, though not less attractive on that account when the flowers are freely produced; but to insure the most imposing effect several plants should be grown together, as in the case of the Chiswick specimen referred to above. About half a dozen plants were placed at equal distance from each other in a large pan, but they were sufficiently developed to fill the space without appearing crowded, and the tall spikes of bright blue flowers were secured on light stakes. In this way some dozen of spikes were brought into view in the most advantageous manner.

— THE Council of the Society of Arts, on the recommendation of the Judges in the late COMPETITION OF PLANT LABELS, are prepared to renew the offer of a Society's silver medal, together with a prize of £5, which has been placed at their disposal for the purpose by G. F. Wilson, Esq., F.R.S., for the best label for plants. The object of the offer is to obtain a label which may be cheap and durable, and may show legibly whatever is written or printed thereon; the label must be suitable for plants in the open border. These considerations will principally govern the award. Specimen labels, bearing a number or motto, and accompanied by a sealed envelope containing the name of the sender, must be sent in to the Secretary of the Society not later than May 1st, 1882.—(Nature.)

— ONE exhibit in the class for BERRY-PRODUCING PLANTS FOR DECORATION at Richmond last week was especially noteworthy—namely, that from Mr. G. King, gardener to R. Few, Esq., Wolsey Grange, Esher, who was accorded the first prize. His plants comprised equal numbers of the compact-growing small red-fruited Capsicum Tom Thumb, and the large yellow-fruited Capsicum Princess of Wales, the latter trained as standards with a clean stem about 18 inches high, the branches being trained on a flat circular trellis, from the under surface of which the fruits were pendulous. The plants were all well grown and in small pots.

— THE meetings of the LINNEAN SOCIETY to be held during the present season, are fixed for the following dates—November 17th, December 1st and 15th. 1882, January 19th, February 2nd and 16th, March 2nd and 16th, April 6th and 20th, May 4th and 24th, June 1st and 15th. The chair will be taken at 8 P.M. at each meeting, except the anniversary on May 24th, when it will be taken at 3 P.M.

— VERY handsome at the present time is a specimen of *CESTRUM AURANTIACUM* in the greenhouse at Kew. The plant is trained up one of the pillars, and is completely covered with dense clusters of orange-yellow flowers, which in form closely resemble the well-known *Habrothamnus fascicularis*. The value of this plant cannot be over-estimated, and it is surprising that nursery-men do not bring it prominently before the public, as it is by no means common in gardens. The fact of flowering so profusely at this time of year is quite sufficient to recommend it to notice, and the specimen above referred to also flowered earlier in the season, thus giving two lengthened supplies of its peculiar tinted blooms.

— THE Lessees of the ALEXANDRA PALACE announce that in 1882 a series of special HORTICULTURAL EXHIBITIONS will be held through the whole of the year under the superintendence of the Horticultural Director, Mr. Forsyth Johnson, from whom particulars can be obtained. A permanent exhibition of horticultural appliances is contemplated, in addition to the monthly displays of fruit and flowers, some of which this year have proved very attractive.

— THE new and distinct *BEGONIA SOCOTRANA*, for which Messrs. J. Veitch & Sons, Chelsea, obtained a certificate at the last meeting of the Royal Horticultural Society, is not only a handsome and valuable addition to the genus, but it may be expected to prove the parent of a distinct race of Begonias, intermediate in general characters between the tuberous and the ordinary types. The bold peltate leaves impart quite a unique appearance to the plant. The bright rosy flowers also are neatly rounded in form, the petals differing comparatively little in size—an additional recommendation in a florist's point of view. As we understand that the plant is easily and quickly increased it will, no doubt, soon become popular.

— A CONTINENTAL periodical states that "the once famous CEDAR FOREST OF LEBANON, formerly so extensive, has dwindled down to the dimensions of a mere thicket, numbering about four hundred trees. To save it from complete destruction and preserve it at least in its present extent, the Governor General of the Lebanon has issued a special ordinance containing a series of stringent regulations calculated to check if not quite put a stop to the vandalism and carelessness of most travellers. It is expressly forbidden to put up tents or other kinds of shelter within the district of the trees, or to light fires, or to cook any provisions in their vicinity. No one is allowed to break off a bough or even a twig from the trees. It is forbidden to bring any beasts of burden, be they horses, mules, asses, or any other kind of animal, within the district. Should oxen, sheep, goats, or other pasturage cattle be found within the prescribed limits they will be confiscated."

— AMONG the TROPICAL FRUITS IN COVENT GARDEN MARKET during the last week or two some fine specimens of Custard Apples have been noticeable. These, no doubt many of our readers know, are the produce of species of *Anona*, the one in question bearing the popular name of the Sweet Sop (*Anona squamosa*), to distinguish it from the Sour Sop (*Anona muricata*). The specific name of the former refers to the appearance of the fruits, which are broadly ovoid in shape, the surface seeming to be covered with flat scales. Large specimens of the Avocado

Pear (*Persea gratissima*) have also been observable, and this fruit is not nearly so frequently seen in the market as those first mentioned. They closely resemble a Pear in shape, being about 6 inches or more in length, broad at the apex, and tapering to the base. They are reddish-brown in colour when mature, and are greatly esteemed in the West Indies. *Persea* is a Lauraceous genus allied to the Cinnamon. Though a native of our own country and other temperate regions, the fruit of the *Arbutus Unedo* is not frequently seen in the market. A week or two ago, however, several large boxes of the brightly coloured, tempting, Strawberry-like fruit were noticeable in the central avenue. The fruits were larger and more richly coloured than they are usually seen, and would make a handsome dish for the table, but would be of no other use, as, notwithstanding its attractive exterior, the fruit possesses no qualities to recommend it for eating.

— OUR correspondent "W. J. M." sends us the following note on FRUIT AT THE CLONMEL SHOW—"The display was an excellent one from local growers. Upwards of thirty varieties of Apples, nearly as many Pears, well-grown Grapes, Medlars, Nuts, and many other fruits common to this season were staged; and in addition fine specimens of green and scarlet-fleshed Melons (Eastnor Castle and Munro's Little Heath), Telegraph Cucumbers, and Garibaldi Strawberries. These came from Mrs. Bianconi, Cashel (gardener, Mr. Palmer); Shanbally Castle, the residence of Lord Lismore (gardener, Mr. Wilsher); and from Knocklofty, the residence of Lord Donoughmore (gardener, Mr. Ryan), respectively. The Apples and Pears sent by Mrs. Crean, Glenview, contained some remarkably fine specimens. The competition was very close, and the following varieties had first prizes in their several sections. Dessert Apples—Cox's Orange Pippin and King of the Pippins, also a new seedling Apple which was raised by Mr. Clibborn, Anner Mills House, larger than Cox's Orange Pippin and of the flavour of the Ribston Pippin, but larger than either, remarkably handsome in colour. Alfriston, Emperor Alexander, and Beauty of Kent were the leading varieties in the baking or kitchen section, and deservedly. Some splendid Pears were also shown. Several connoisseurs thought they had never seen finer examples of Beurré Clairgeau and Duchesse d'Angoulême; while Beurré Amanlis and Glou Morceau, as well as the immensely large Catillae and Vicar of Wakefield, were prizetakers. Equal first prizes in the class for collections of eighteen distinct varieties of fruit went to Lord Lismore and Mrs. Bianconi, and second to Lord Donoughmore. There were three splendid collections of vegetables, each containing at least thirty distinct varieties. The first prize went to Captain Moore of Barne (gardener, Mr. Saville)."

THEORIES IN GRAPE CULTURE.

I AM glad Mr. Bardney has criticised my remarks under this heading on page 383, and in a right spirit too. Personalities engender personalities, and should be avoided in public controversy as much as possible. A person may be altogether wrong in his ideas and practices, but if he ventures to publish these, and thereby provokes an instructive discussion, he is deserving of credit for his share in the good work; at all events there is no necessity to point out his lack of ordinary intelligence as an argument against him.

It seems I have advanced too much or not enough to satisfy Mr. Bardney; but it is difficult to be brief yet explicit. My argument is against extremes, and it is simply this—it is a mistake to rob Vine borders of much of their fertility to meet the supposed requirements of the young Vines, and that the results would be nearly or quite as satisfactory in the first instance, and decidedly more lasting, if the practice of regulating the top growth were more in accordance with that I endeavoured to describe. According to my experience, the disadvantageous result of so much unrestrictive growth is the creation of many more roots than are really needed, and a

houseful of growth that will be cut away and burnt. The latter however, Mr. Bardney says, is not a loss, as the ashes "can be returned to the border for food again for the Vines." I cannot but admire that observation. Wood ashes are undoubtedly of great service to the Vines, as supplying the requisite potash; but the ashes thus obtained, even if applied, would not go far towards restoring the fertility needlessly expended.

The advantage claimed by Mr. Bardney as the result of unrestricted growth is the certainty of securing heavier and well-finished crops without the risk of early exhaustion. Now this is just the result I ask for proof of; but it must be further substantiated to convince me. For instance, what number of bunches did Mr. Bardney allow on each Vine the second year after planting, and again the third year, and their aggregate weights?

Mr. Bardney's case alone, however, whatever the results may be, is not sufficient to demonstrate the correctness of his or the incorrectness of my assertions, simply because his borders are made piecemeal, whereas the majority of cultivators, either of necessity or from choice, complete their borders at once. These, therefore, have not the opportunity of pinching back the leading roots in order to more thoroughly fill a limited width of the border. On the contrary, the roots rapidly run through the whole, and as rapidly exhaust that whole of its fertility. What is the consequence? The first few years excellent crops and prizes are taken, but presently comes a reaction, and unless an expensive remedy in the shape of a renewal of the border is resorted to, failure from exhaustion takes place. Of such growers it is said "they have had their day," "their borders are exhausted," "their Vines are getting old," and similar, by no means complimentary, expressions. It is true that borders can be enriched from the surface, but after all that is not equal to what the roots find in the body of a well-constituted unexhausted border. If this is not so, why does Mr. Bardney shift his Vines from the pots in which they were grown into still larger pots? or Mr. Coleman and other noted growers frequently renew the fronts of their borders? All borders eventually become exhausted, and it is necessary to renew them occasionally; not, however, to furnish food for storing, but rather to provide a feeding ground for the next season's new roots. At the risk of being again voted ignorant, I assert there is a possibility of storing up much sap needlessly. Did anyone observe any great harm accrue to Vines that bled excessively when started? I never did; and I am not in the habit of going about with, metaphorically speaking, my eyes shut.

Growers of Vines in pots will not be much impressed with Mr. Bardney's crop. A weight of about 6 lbs. of Grapes per Vine is far from being an extra heavy crop. In the large pots Mr. Bardney fruits them in they ought to perfect such a crop, and not be exhausted, without resorting to extended top growth.

I have two important reasons for finding fault with Mr. Bardney's otherwise excellent practice with the planted-out Vines. The first fault is encouraging the leading shoots to extend as fast as they can till they "resemble a thicket at the top of the house, the laterals only being pinched up to the place where the leader was stopped the second time." By so doing he strengthens the top of the rod at the expense of the base; the only advantage really gained being an "abundance of sources in which to exhaust the supply of sap." This again is a doubtful advantage. Anybody can grow good bunches at the top of the house, but it is not everybody who can secure equally as good at the front. Make a good start by well furnishing the base with vigorous laterals, and by ordinarily fair treatment these will continue strong. It is at the base where growth should be encouraged in case of defective root-action, and not at the top; at all events, to so great an extent as your correspondent advocates. There is no doubt unrestricted growth enlarges the stems, but nurserymen do not depend upon the head of a young standard Apple tree to strengthen the stems; on the contrary, the laterals are retained and gradually shortened till this is accomplished, when they are cut away. The finest Vine stems I have yet seen were treated similarly, with this difference, the laterals down to the ground are still retained. I do not believe in rapid commencements, but prefer rather to keep the stems constantly swelling; and instead of a short-lived reputation as a good Grape-grower I should be infinitely more proud to be able to remark of a house of Grapes, say at the end of nine or ten years, "that is the best crop of Grapes I have yet secured from those Vines since planting them." At that age the border could not well be too full of roots; it is in the earlier stages that I object to having the borders needlessly exhausted.

The other objection to a houseful of top growth in the earlier stages is this. I attach much importance to the crop of Grapes or Tomatoes that can be grown on the back wall or in the body of

the house, preferring to have supernumeraries in these positions rather than crowded in among the permanent Vines.

When I submitted my views on this subject I did not expect to meet all the arguments that might be adduced in antagonism to my opinions, and certainly did not think of airing my limited scientific knowledge, knowing as well as "SINGLE-HANDED" that science must be thoroughly understood or let alone in a public discussion. At the same time I fail to see where I gave such lamentable proof of my ignorance of the rudiments of the structure and functions of plants, including the Vine. He must have a poor opinion of my intelligence if he supposes I am under the impression the borders are filled with roots for no presumably good purpose. What they are so filled for I leave to the advocates of the practice to explain, and merely argue against it, being under the impression a much less number of roots would suffice. Vines trained as I described would also have "ample working power of foliage, ample room to work in, ample feeding, ample supplies of heat and light," and it is unnecessary for me to dip still deeper into science to assert such foliage thus obtained would be in a better state to elaborate sap than those that are included in a "thicket of growth." A few large leathery leaves are preferable to a greater number of thin papery foliage, and young sappy growth surely does not do much towards filling the "reservoirs with organised material in the autumn." That it is necessary to have material stored at hand to support the young growth of Vines is obvious, but it is superabundance to which I object, as this results in the formation of too sappy growth. It is not necessary to retain the whole of the roots of well-established Vines, the canes of which are severely pruned; and if a number of the roots are severed in the autumn before the loss of foliage, they will heal and produce more roots, which in good soil will afford a plentiful supply of sap when this is really required.

In support of my arguments, and in conclusion, I quote the following from a contemporary relating to fruit-growing at Sawbridgeworth—"The most surprising evidence of the accommodating nature of the Vine was that of two plants, Black Hamburgh and Royal Muscadine. The pots in which they grew were 12 inches in diameter, but perforated, and standing on a small bed of compost, into which the roots were allowed to spread. The bed was scarcely a yard square and not more than a foot in depth. Of course the roots were fed with liberal doses and dressing of manure. After the crop had been taken and the canes thoroughly ripened the soil in the bed beyond a margin of 4 or 5 inches from the pot is entirely cut away and replaced with fresh compost. The two Vines in question were bearing each—and had borne for two years, I was told, previously—from twelve to fourteen splendid bunches. The Vines consisted, of course, of single canes, and stood on each side of a doorway in a house 9 feet wide, in which young Vines were grown"—not much room for unrestricted growth there, and the majority of the "underground stems generally called roots" were not much valued, at all events as "reservoirs."—W. IGGULDEN.

Two able correspondents have questioned the soundness of Mr. Iggulden's views on the management of Vines, and I am not disposed to dispute the general accuracy of their statements, but still I do not regard them as conclusive. The subject of rampant growth in the early stages of a Vine's career, as advanced by Mr. Iggulden, is highly worthy of discussion. Great enthusiasm exists amongst growers of Grapes, and enthusiastic people often carry their notions to extremes. Mr. Iggulden is, perhaps, apt to restrict his Vines unduly, and Mr. Bardney and "SINGLE-HANDED" to attach too much importance to a free extension of growth; but whether they do so or not depends on their mode of pruning afterwards. Mr. Bardney states that he pinches the laterals up to a height of 3 or 4 feet, and beyond that the Vines are allowed to grow as much and as fast as they can. If he cuts them down in winter to the point below where free growth was encouraged, he will simply cut off the best buds that would, if left, produce the best bunches and finest Grapes. The eyes on the lower or restricted portion will be weak in comparison with those above them, and weak eyes produce weak growths, and these cannot afford the best Grapes.

If Mr. Bardney can remove nine-tenths of the growths from the Vines and preserve all the root-fibres alive, as he appears to think he can, I do not hesitate to say that he stands alone. Anyone who examines Vines grown in pots, no matter how well they may be grown, will find that many fibres decay even when the canes are not materially shortened, and they will certainly do so in a border where the Vines are severely pruned. The main roots, however, will not decay, and these undoubtedly are storehouses of food for the Vines. But the question arises, Of what avail is food if it is in greater quantity than can be appropriated, as it

cannot be by Vines luxuriantly grown, and then nearly all the stems, which are also food stores, cut away? The method advocated—assuming that it is followed by close pruning—is more generous than economical, and often results in the undue exhaustion of the border. It is true “nothing is lost” in nature, but it is equally true that all that is extracted from the Vine border is not returned to it, as Mr. Bardney suggests it might be, and there is a wide and most important difference between what is done and what might be done in Grape-growing as in other matters.

No doubt there are many readers of these pages who have seen Vines that have been grown luxuriantly and unrestrictedly, and then pruned severely, disappointed by the small size of their bunches and fruit. I have seen many such. In a few years the Vines have improved, but this only showed that the wild growth

in summer and hard pruning in winter was not perfect treatment. It is, I believe, a fact that Vines have been so managed, with the object of storing them with food, and others in the same house planted as supernumeraries, and confined to single stems that have not been much shortened, with the result that the “supernumeraries,” to speak paradoxically, are now the permanent Vines, and the (another paradox) “permanent” Vines have vanished. How does “SINGLE-HANDED” explain this scientifically?

I have seen some of the finest Vines and best crops of Grapes that have come under my notice produced much in the manner that Mr. Iggulden has described, but not quite so closely pinched; and I suspect Mr. Bardney's pot Vines were prepared much in the same way—and it is of preparing young Vines that Mr. Iggulden wrote. His after management of established Vines



Fig. 74.—*DRACÆNA LINDENI*.

would not, I presume, differ materially from that followed by Mr. Bardney, “SINGLE-HANDED,” and other good cultivators.—
AN OLD GRAPE-GROWER.

DRACÆNA LINDENI.

AMONG the numerous beautiful plants, for the introduction of which both continental and English horticulturists are indebted to M. Linden of Ghent, *Dracæna Lindenii* (fig. 74) deserves a high position. Red and green-leaved *Dracænas* are abundant, and any departure from the prevailing types is especially welcome now there is such a general demand for novelties. *D. Goldiana* is, perhaps, one of the most remarkable forms of the genus; but next to this must be ranked *D. Lindenii* and *D. fragrans variegata*, the two latter closely resembling each other in habit and form of leaves, but are quite distinct in the variegation. *D. Lindenii* has a dark green stripe down the centre of the leaf, with yellowish white margins. The other form has the light colour in the centre of the leaf, the margins being green. Near the edge of the leaf

in the former is frequently a narrow band of green, and sometimes irregular streaks of green and pale rose break through the light marginal bands. The leaves are 8 to 15 inches long, about 3 inches broad at the widest portion, and tapering gradually to each end. The footstalks clasp the stem, and the blade is slightly recurved, so that while possessing a bold appearance it is also graceful.

Remarkable evidence of the value and general appreciation of this plant is afforded by the fact that no less than four English firms have obtained certificates for it this year—namely, Messrs. J. Veitch & Sons at Regent's Park, B. S. Williams and R. P. Ker at Manchester, and W. Bull at Kensington.

THE LONGLEAT VINERY.

I BEG to enclose you a good photograph of the vinery at Longleat, from which you will see the crop of Muscats is all it has been described to be. It should be noted also that, although the vinery is 30 feet wide, it contains only eight rows of 4-inch pipes,

which, if my recollection serves me right, is just about half or a little more than half the quantity of piping which I saw in a high-temperature cultivator's vinery in the Lothians once that was either only 20 or 24 feet wide, and contained twelve rows or more pipes. This means a considerable difference in the expense to begin with. True, the difference in the mean temperatures of the spring months is some 2° in favour of Longleat over the Lothians, but cold nights are nearly equal according to the occasional accounts in your pages of both places, while the west coast rejoices in a preponderance of dull skies and rain, which must equalise matters to some extent.—CORRESPONDENT.

[The photograph affords a fair idea of the interior of the Longleat vinery, but by no means does justice to the appearance of the crop. A house of Grapes so large cannot be successfully photographed.—ED.]

GETTING ON.

SOME time since I read an article by your much-esteemed correspondent, Mr. Pettigrew, on "Lessons of Life for Young Gardeners" that interested me much and amused me also. I believe your correspondent was prompted by the best of motives, and believed all he himself stated; but he will excuse me, I hope, in saying that his opinions are not shared by a great many gardeners of experience. Shortly, Mr. Pettigrew's theory, as regards success in life among gardeners, is simply that the best men are all but sure to come to the front. I am not going to deny that the good men sometimes reap the reward of their industry and good behaviour, but I do not for a moment believe that the rule holds good in gardening. If it does, then my experience is different from other people's. By good places I simply mean the most respectable and the best paid, and I suppose this is what Mr. Pettigrew means too. Now I know a very large number of gardeners in both large and small situations, well paid and ill paid, and I can conscientiously say that I would grievously wrong the last—the men who have not got on—if I was to say they were in any respect, or on the average, inferior to the first. Many of the best men I know are men in small places, not a few of them single-handed, and they have been trying energetically all their lives to get further up the ladder, but without success, and chiefly because they lack influence. It can hardly be expected to be otherwise: there is no competitive examination among gardeners for situations, and success is largely a question of luck or influence. It is a great mistake to suppose that all the best places are filled by the best men, but such ought to be the case if, as Mr. Pettigrew says, the best men are sure to come to the front. Is even a fair proportion of them there? If it was so, would there be so many changes, so many dismissals for incompetency? Would there be so many ill-managed gardens where everything is found to render management successful but skill and energy? I think not. I should think, sir, that your experience as a horticultural editor has made you aware of this long ago—made you aware not only that the best men do not always get the promotion they deserve, but that they often also fail to meet with that appreciative encouragement they should expect. When I recall to my mind the circumstances under which many men have obtained excellent situations I am driven to one conclusion only—that success is largely a matter of chance, both in public and private gardens. The fact is indeed notorious.

I am not speaking as a disappointed man, for few have less reason to complain than I have, I am glad to say; but I simply give you my opinion, gained from experience and acquaintance with a large number of gardeners in high places and low ones as well, and not a little acquaintance with employers. I cannot here specify cases, but I could do, and they would startle your readers a little. This, however, I may be permitted to state, that out of a large number of first-rate situations I have known filled during the past thirty years, I could point to very few of them in which the success of the chosen man was due to his own special qualifications as a man or a gardener. Some of them have turned out bad and some well, and several of whom the best things were expected have turned out best, and are now well-known men and gardeners. In numbers of instances the thing was managed by "a friend in court," and but for whom the applicant would have had no chance whatever. Let not your young readers be discouraged, however, by these remarks. It is their chances of the first step—securing a good situation—that I regard as most precarious and most doubtful, but it is the most important step of all. Once in a place, however, it requires ability and a knowledge of one's business, as well as all the good qualities pointed out by Mr. Pettigrew, to keep it, and for this reason alone young men ought to strive to fit themselves for their duties in the best manner possible.

Another thing. If head gardeners would do their duty themselves by promoting their men according to merit, that would in itself greatly facilitate the progress and success of the most deserving, because the weeding-out process would begin at the beginning, and fewer inferior men would be left. But gardeners, as is well known, do not follow this wholesome rule.

In conclusion, I may say that I am aware it is the custom of most writers to expatiate on brighter prospects of the most deserving and clever men; and in business capacities, where men are their own masters and control their own affairs, this view is no doubt the right one; but it is different in the fight for situations in gardening. I believe there is little or no foundation for much that is written in the *couleur de Rose* vein. When a good man obtains a good place the chances are that he will shine; but the stars are few, and who will venture to assert that the brightest orbs in the horticultural firmament are the men who fill the best places?—DUNEDIN.

EUPHORBIA JACQUINIÆFLORA.

HAVING profited by many useful hints in the Journal, I have thought that perhaps my experience as to the propagation of the above plant may be useful to some of the readers of its pages. We had a large specimen planted out against the back wall of a stove, but through some cause in the spring of this year its leaves commenced turning yellow and falling, which convinced me at once that all was not well with it, and as it was a particular favourite with my employers I wished to find, if possible, the cause of its unhealthy condition. On removing a little soil from the collar I found that the bark was quite decayed. Probably the cause of this was being planted too deeply, the ball of the plant being fully 4 inches below the level of the soil. As there was not the least chance of its recovering I determined to try an experiment with the branches. The plant was lifted and divided, not using the knife, into a number of pieces, each piece with a heel. Some of the growths thus secured were over 5 feet in length and as thick as a man's finger. I then made a small trench the whole length of the wall, which was filled with leaf soil and sand; the branches were placed in about 6 inches apart, giving a watering to settle the soil, then secured to the wire against the wall. This operation was done in March. In due time they commenced growing, only three out of about thirty dying. The wall, which is 8 feet in height, is now well covered with luxuriant growths, some of which have attained the length of 5 feet and are showing their flower buds.

The above way of propagating this old and most useful winter-flowering plant may not be new to all who read the Journal, but it may be to some, and in the hope that it may prove useful I submit it.—J. RICHARDSON, *Calverton Hall, Notts.*

THE CUCUMBER-ROOT DISEASE—ANTS.

"W. J." writes, on page 379, inquiring about this disease. I have been troubled just in the same way as your correspondent, but did not know the real cause of the plants failing until I saw the illustration and examined the roots of my plants. I imagined that they had used up all the plant food in the soil and were starving, consequently I gave the beds a coating of cow dung an inch thick, watering heavily for two or three days. The effect has been very satisfactory. Of course, all the young fruits which were injured were cut away, as they would never have been marketable. Whether this cure would suit the Melons I do not know, as I have no faith in growing them in a Cucumber house.

I have been pestered with ants and tried all sorts of cures—arsenic and treacle, guano, paraffin, but all to no purpose. I lately, however, noticed that they were very fond of Apple. I have since fed them liberally on it. I lay the pieces on top of the wall alongside the pathway. Every half hour I go along the house with a can of boiling water, and, dropping the pieces in, kill from twelve to twenty ants on each piece, setting the baits again for further execution. I have not seen this method recommended before, and can say that it is both cleaner and less dangerous than others which I have tried.—HORTUS.

SEEDLING VERBENAS.—It may possibly be of service to some readers if I state my success with seedling Verbenas last summer, and how the plants were raised. The seed was sown in moderate heat the last week in February, and the plants when ready were pricked off in small pots in a mixture of loam, decayed cow dung and leaf soil, with a fair amount of silver sand, and were gradually hardened in cold pits. Some were potted for conservatory decoration; they proved most useful, and several produced first-class flowers. Plants of the best varieties are, now in a cold frame; they

will be eventually cut down and placed in heat, and the young growths will be inserted as cuttings in February. I find these beautiful flowers not only add a charm to the flower garden but are exceedingly useful in pots and hanging baskets for conservatory and table decoration.—H. C. OGLE, *Chilworth Manor, Hants.*

SCRAPS ABOUT FRUITS.

SIBERIAN CRABS FOR PRESERVING.—For three years I have particularly noticed the productiveness of the scarlet Siberian Crab, and this year the jam made therefrom has been pronounced by all to be the most desirable of all the various kinds. This Crab also has the advantage of hanging long, is most beautiful, and uncooked is not cared for by children. I cannot too strongly recommend it, for it has only to be known to be much sought after for making into jam, and fine weather for the gathering can be waited for. We strain it to take out the seeds, but some prefer it whole, though we do not consider this the best way.—JOSEPH WITHERSPOON, *Chester-le-Street.*

APRICOTS.—Taken as a whole the crop of Apricots proved the most valuable of any grown. We had a fair sprinkling of fruit on trees trained to walls with south-east and west aspects, but the greatest quantity of the best quality were taken from those on a south wall, these receiving the benefit of protection by Parham's glass coping and blinds. Early Moorpark was the first to ripen, and yielded heavily. Hemskerk formed an admirable succession to this, and produced large-sized fruit in abundance. The trees of Moorpark that were planted at the same time as the two preceding varieties have been dead some years, and those since planted are fast dying, a quarter of a tree going at a time. This is much to be regretted, not only because of the blanks it causes, but also on account of the superior quality of the fruit. It will not be planted again, the preference being given to Hemskerk. Kaisha was fairly prolific, but was rather dry, and Shipley's was much smaller than anticipated. Musch-Musch is not worthy of the space devoted to it, and will have to make way for better varieties, and neither the Roman nor Turkey are much admired.—W. IGGULDEN.

SERVICEABLE GOOSEBERRIES.—The large Early White, White-Smith, Early Sulphur, Sulphur, Crown Bob, and Red Warrington are generally profitable. The latter especially is recommended as being free-bearing and a good keeper, while Sulphur is excellent for dessert purposes, and also hangs fairly well.—ESSEX.

STRAWBERRIES v. FROST.—Have any readers of the Journal noticed that old plants are usually more injured by frost than young plants are? This is my experience, and affords proof of the necessity of frequently forming fresh beds. Sir C. Napier was the most injured, and British Queen also suffered considerably. Vicomtesse Hericart de Thury proved the heaviest cropper and the worst in quality. Keens' Seedling, Sir J. Paxton, La Grosse Sucrée, and Dr. Hogg were fairly remunerative, and young plants stood the severity of last winter well.—M. H. F.

USEFUL PLUMS.—Orleans must be considered one of the most profitable culinary Plums. Victoria usually bears abundantly, as also does Pond's Seedling, or Fonthill as it is called hereabouts. Mitchelson's bears prodigiously. I would prefer having standards of those mentioned, devoting the wall space to choicer dessert varieties, of which Transparent Gage is one of the best, and the excellent Coe's Golden Drop seldom fails.—SOMERSET.

MARGIL APPLE.—To lovers of miniature fruit trees that crop heavily and early I cordially commend Margil upon the Paradise stock. It is a first-rate dessert fruit, small in size but delicious in flavour, just coming into use now, and generally continuing good till after Christmas. Its synonym of Never Fail is justly descriptive of its remarkable propensity to bear fruit abundantly every year after it has once begun doing so, and it forms fruit buds so early that it is no uncommon sight to see dwarf trees not much larger than a Gooseberry bush heavily laden with fruit.—A KENTISH GROWER.

HOW WE BEAT THE BLACKBIRDS.—After two or three seasons' use netting, especially old fish-netting, is easily torn. Of this the blackbirds would seem to be aware, for often have I seen them dash at old netting and force their way through; but this was invariably at the sides of covered bushes, and never through the top. Acting upon this fact last summer, when our splendid crop

of Warrington Gooseberry began to ripen, a frame of poles was erected around them, netting placed over the top, and Russian mats on the sides, care being taken to peg them securely to the ground. The plan was a great success. Not a blackbird could get in; nor did they appear to try, but, like wise birds, at once owned themselves beaten, and turned their attention to less closely guarded quarters.—E. L. O.

MANAGEMENT OF HEAVY SOILS.

THAT there is no ground so heavy that it cannot be made to produce enormous crops I quite believe, and that there are different ways of bringing it to that desired end is equally certain. Being one of those who are located on heavy soil, and having been successful in securing a greater depth of workable soil, and at the same time growing heavy crops of vegetables, it may be acceptable if I describe the practice, although it may not be new. We double-dig or trench every second or third year as practicable; and whether the ground be single or double-dug we always throw it in ridges, doing it as early as possible in the autumn, at the same time adding manure or whatever dressing we may have for it. If double-dug we do not turn all the dressing to the bottom, but give another layer after the first spit is turned over, always working in a good sprinkling of fine ashes, and when it is not the desired depth we bring a small portion of the subsoil to the surface. During frosty weather we give a good sprinkling of sifted coal ashes. The whole is well forked over on frosty mornings during the spring, and again before the crops are put in. If the soil is very shallow we do not bring the second spit to the surface, but give it a dressing of lime and ashes and turn it over in the bottom of the trench; a year or two afterwards it is treated as above. The secret of success afterwards is to well loosen the soil between all growing crops, and at all times to be sparing with farmyard manure. Heavy soil so treated has exceeded our expectation. Although differing somewhat from Mr. Taylor's mode of procedure, we are aiming at the same end—namely, to grow crops of vegetables of the first order, and to obtain a greater depth of workable soil.—G. SUMMERS, *Sandbeck Park.*

NOTES ON POTATOES.

I AM aware I am treading on dangerous ground when I criticise such an opinion as Mr. Thomas Laxton's. Like "W. J. M." (see page 425), I have always found Champions one of the best of Potatoes. This season I have grown it largely and am well satisfied with the results. It is with me like balls of flour, and the flavour equal to that of any Potato of my knowledge. Among the varieties I have grown this year is Paterson's Victoria, and I am quite astonished that Mr. Pearse (see page 426) finds it worthless. Here it is excellent, the crop good and nearly free from disease. Beauty of Hebron is a good early variety, but the flavour is not in comparison with Scotch Champions. Magnum Bonum is with me this season coarse, although the quality is good. Suttons' Reading Hero is a remarkably fine Potato and sure to come to the front; in fact, I characterise it Scotch Champion's own brother with shallow eyes. It is a capital cropper, free from disease. I may mention Vear of Laleham, Adirondack, and Vermont Champion, which I have grown this season, which are all worthy of the honour conferred upon them of being certificated by the Royal Horticultural Society. I send you a Potato which I call Uxbridge Kidney, which for cropping and using I should say has but few rivals.—R. GILBERT, *Burghley.*

At page 425 of last week's issue your correspondent, "W. J. M.," takes exception to my comparison of Reading Hero with the Champion Potato as being less waxy, and alleges that the latter variety does not fulfil this character in Ireland; but here, as compared with the Schoolmaster, Regent, or Fluke, which are *par excellence* light, floury, and digestive Potatoes, the Champion is undoubtedly more or less waxy and internally very solid-fleshed, although the outside is floury. In the centre the Champion is generally of a yellowish colour and approaching somewhat to the condition of a well-ripened Myatt's Prolific or a Lapstone. To me personally this quality is not objectionable. The Champion has also the advantage of being very satisfying and highly nutritive, and probably more so than the light-fleshed sorts; nevertheless the latter are preferred by the public and in the market, especially during the winter. In using the term I did not intend to convey that the Champion approached the condition of the Early Shaw, a typical waxy Potato, and which I have found to deserve this character in Ireland as well as in England. Grown on strong land the Champion is more waxy than on light

soil, but under all circumstances it differs very materially in this respect from Schoolmaster and Reading Hero, although both are dry; but perhaps the English language is not sufficiently replete to express the exact eating qualities of a Potato, especially where tastes and opinions as well as soil and locality must be taken into account. Growers for market in this locality give the Champion the character of being somewhat waxy, and I have seen somewhere in the daily press a similar character accorded to it in the west of Ireland, but doubtless climate as well as soil has something to do with its condition.—T. LAXTON, *Bedford*.

SILKWORMS AND SILKWORM-REARING.—1.

IN the oldest book now extant—or rather, one should say, in the collection of the oldest books, since it embraces the writings of many authors, that is in the Old Testament—we perceive that silk is mentioned more than once. But it may be open to debate whether the Hebrew word is rightly translated, and I incline to the view that a fine linen material is probably meant, and that the Jews did not get a knowledge of silk until near to the beginning of the Christian era. The New Testament names it but once, and there, doubtless, *sericon* does stand for some silken fabric; taking its name, as is supposed, from an old word signifying “to shine,” and applied, Parkhurst thinks, to a people in China or India, the first weavers of silk, because of the splendour or opulence of their land. Might it not rather be from the lustrous appearance of the article in question? Yet it is uncertain, and we also do not know, and never shall know, who was the person to whom the sight of the silkworm’s cocoon proved suggestive, leading him or her to wind and utilise the threads. We say “him or her,” because, with all respect for a great living poet, we cannot accept an assertion he seems to make, that women rarely discover or invent. Indeed, it so happens here that the Chinese have a tale which ascribes the origin of silken fabrics to the Empress Si-ling-chi. This is but a myth, yet, all things considered, it is quite likely the desire for a new article of dress may have led some oriental dame to try experiments with the silkworm’s thread. And several circumstances point to China as the region where the most important of all the caterpillars yielding silk, *Bombyx Mori*, was first reared for profit; though silk has long been produced in India from the “Tussar” species.

Chinese records of undeniable antiquity contain details of regulations respecting silk culture, which show the existence of an early trade in this article. The Mulberry trees were protected by special laws, and their planting was encouraged, and those who reared silkworms were not allowed to send the insect out of China in any of its stages, or to furnish information concerning the production of silk. It would probably be by way of Persia that silk reached Asia Minor from China chiefly; some of the coarser sort manufactured in India seems also to have reached those cities where the people, many centuries ago, became famous for their rich carpets, in which gold and silken threads were mingled with other materials. The price of silk was enormous, for when the first samples came into Greece they were worth more than their weight in gold. It was only known there from the reign of Alexander the Great, who may have obtained it direct from India. And it is worthy of remark that another great military hero, Julius Caesar, is stated to have brought silk to Italy, where, under the luxurious years of the Roman Empire, silken robes became in general demand.

Still, for centuries after the Christian era, no silkworms came into Europe, so jealously did the Chinese guard them; and the story has been frequently repeated that two missionary monks who had been in China to make inquiries, having reported to the Emperor Justinian, succeeded on a second visit in obtaining eggs, which they concealed within hollow walking-sticks. These were brought, so it is said, to Constantinople about A.D. 550, and colonies of the insects were soon established in several parts of Turkey and Greece. The species was undeniably our *Bombyx Mori*; and from the extensive planting of trees in a district of South Greece to supply leaves for their food, this is thought to have been named the “Morca,” from *Morus*, the Mulberry. For six centuries more silkworm culture did not extend itself from Greece to other European countries.

At last, however, a war broke up the monopoly thus held by Greece; and after Roger, King of Sicily, had overrun that country, he removed to Italy many of the persons who had been employed in rearing silkworms and in weaving silk. These he lodged in houses near his palace at Palermo during 1168, so that he might watch their proceedings. Slowly from this beginning the art of silkworm-rearing became known in other parts of Italy, until silk manufactures assumed great importance in the towns of Florence and Venice. Some time in the fourteenth century French-

men returning to their native land from a sojourn in Italy made their countrymen acquainted with the silkworm and its favourite tree. Without Mulberries it was not possible to breed silkworms, and several attempts to encourage the planting of these were considerably checked by the unsettled state of the nation. The Lyons manufacturers during a long period employed silk which they obtained from Italy, but the home-rearing of silkworms made a great advance under Henry IV.

Leaving the Continent for the present, we notice the fact that in the days of the Tudors silken articles were rare in England, as appears from Queen Elizabeth having received with much pleasure the offering of a pair of silk stockings. Towards the close of her long reign she had no doubt secured a variety of articles of silk, which would be found, could we get a sight of it, upon the long list of nearly four thousand dresses and other garments that were contained in her wardrobes at her decease. Her successor, James I., took a special interest in the culture of silk, as is proved by an experiment he entered upon with the idea of developing a new English industry. Having studied the history of the silkworm, he thought the insect might be profitably reared in England. St. James’s Palace had become the occasional residence of our kings, and at a short distance from it to the west James chose a piece of land of about five acres, and had it planted with Mulberries. This was in 1609, the ground being that which subsequently became the site of Buckingham House. Whether it was by accident or intention I cannot say, but the position was rather a suitable one, sheltered from the winds, and in a part of Pimlico that is milder than some of the London suburbs. James expended the sum of £935 (to be exact) upon the planting of this Mulberry ground, this by no means representing his whole outlay upon the business, for he obtained many thousands of slips from the Continent. Some of these he distributed in various districts. It was at this time, no doubt, that one William Shakespeare planted his Mulberry tree at Stratford-on-Avon, which was to attain to great celebrity.

It has been suggested that the English spring and summer were more equable in temperature 250 years ago or so than they have been observed to be since the changes of weather have been exactly recorded. If this was the case, silkworm-rearing in the open air, or with slight protection, might have had a better chance then; yet it appears King James’s scheme was a failure. Silkworms were, however, fed in the Mulberry Garden during his reign and a part of the next, for there is an old deed by which Charles I. assigned to Lord Aston’s keeping this garden, its buildings, trees, and silkworms, for a term. Afterwards the Mulberry Garden was converted into a pleasure resort for the fashionables. “A silly place, but with a pretty wilderness,” Pepys remarks.

Another experiment in silk-culture was tried about a century later. The spot chosen for this was Chelsea Park, at that time called Wharton Park, and originally a sandy tract of land near Brompton Heath, over which deer wandered when Chelsea was only a little village. A patent was granted to the Raw Silk Company in 1721, and a great portion of the park set with Mulberries. Silkworms were reared there. Some articles were also manufactured, for Thoresby mentions in his Diary that he had seen one of these designed for a present to the Princess of Wales. For a while this was one of the sights of London, and many foreigners came to see Chelsea silkworms and their silk, but a few years brought the enterprise to a finish through want of sufficient capital to persevere, so Faulkner states.—J. R. S. C.

ON THE ADVANTAGES OF VISITING GARDENS.

WE are from time to time, through the writings of those who have visited various large gardens, able to form an idea of the manner in which plants are grown in different establishments, and to many gardeners this is the only means whereby they are able to learn what is passing in the large gardens in the country.

If employers could only be brought to see the immense advantages to be derived from the adoption of the practice of sending their gardeners to visit notable places we should not hear of so many failures, and a better feeling would be created between master and man. Take, for instance, a gardener living some hundreds of miles from London. What advantages he derives from an occasional visit there! The various parks, gardens, and nurseries are full of interest and instruction. He meets noted growers, who are always willing to give him the benefit of their experience. He sees many plants he has only heard of before, different styles of bedding, and hints on the treatment most suitable. He will probably see some fruit or vegetable brought to a higher state of excellence than his own: he soon learns where his treatment is wrong, and on his return home with his note

book full of hints and suggestions, immediately commences the work of reformation.

There is always something to be learnt in gardening; and the gardener who is able to visit different establishments is continually improving his knowledge, and from seeing something done better by others with less advantages than he has himself, he is induced to try more earnestly than ever to master difficulties.

The facilities for travelling are very great, but gardeners cannot always afford to pay their travelling expenses, but if employers would do this occasionally I am sure they would be gainers in the end; and if those who doubted the wisdom of doing this were to ask those who had tried the experiment, I think the answer in many cases would be, Go and do likewise.—CANTAB.

PELARGONIUM GUILLON MANGILLI.

YOUR correspondent in describing his "Run to the West," gives a description of this variety which may mislead some who purchase it. In flowers as in other things there is a variety of taste and judgment. Allow me to give mine. Early this spring I obtained three cuttings of the above Pelargonium, all of which struck and did well. They are now fine robust plants bearing from eight to ten trusses of bloom, but they have disappointed me. In the first place the flower is neither single nor double, but a confused mixture of petals, none of the flowers being of good form; and secondly, the colour is neither one thing nor the other, but again a confused mixture, which in my opinion and that of the family, who are pretty good judges, is not pleasing. I have a span-roof house 25 feet long, which from this time forward for many weeks will be a blaze of beauty, and fragrant with sweetest odours. The plants consist of Pelargoniums, Bouvardias, Begonias, Gesneras, Heliotropes, Poinsettias, &c., all grown during the summer with a view to blooming when the frost has destroyed the outdoor plants. It is very interesting to compare the habit and the flowers of the different Pelargoniums. In point of habit Guillon Mangilli is perfect, but in the comparison of flowers he is in our judgment nowhere in the race. My principle in the cultivation of flowers has always been "Little and good." I have for years selected the best and thrown the others away. How barbarous I shall appear to Mr. Taylor, if I say that I am almost doubtful whether his pet will appear among my favourites next year. "Eureka," or as some call it, "I've Got It," seems a first-rate single white, but I have not proved it long enough to be certain.—A LOVER OF HORTICULTURE.

A ROCKERY FOR ALPINE PLANTS.

(Continued from page 418.)

WE are now to speak of the Sedums, and without wishing to be dogmatical I repeat the opinion already expressed, that many of them had better be avoided as rockery plants. Those of the *S. acre* and *S. rupestre* class spread too rapidly; others, however desirable in gardens, are too large for rockeries, and do very well in well-drained raised borders. Amongst these are that fine plant *S. spectabile*, also *S. Maximowiczii*, *S. Telephium*, and such plants; but many neat and pretty kinds remain, which you will easily find out for yourself if you observe their habit when planted out on a rockery, and are not misled by their innocent appearance when confined in a small pot at the nurseryman's. I think I must give the first place to *S. Sieboldii*, of which a large plant has for a month been the prettiest object of my rockery. Though generally cultivated as a greenhouse plant—I suppose because it flowers so late—it is quite hardy, and is generally in flower even here early in September, and goes on through October regardless of many degrees of frost. *S. pulchellum* is another favourite, flowering earlier—about July. It grows luxuriantly and flowers freely; but the usual Nemesis of free-flowering awaits it, for it dies off almost entirely after flowering, and if not constantly increased by inserting slips, which strike readily anywhere, it is liable to be lost. *S. Ewersii* is also beautiful, bearing bright rose-coloured flowers in the hottest suns of summer. This list can be added to with cautious discretion.

The genus *Dianthus* supplies some of our prettiest Alpines, of which the cultivation requires care. The loam of the rockery should be abundantly mixed with coarse grit, to which a little peat may be added; and the plants should rest on ledges of bare rock, in the full sun, and on no account be overgrown by coarser growth. Raising these plants from cuttings requires practice, and they are more easily grown from seed, but beware of trying to divide a plant of *Dianthus*. It is said that *D. alpinus*, one of the prettiest, will not thrive on a slope, but must have a level shelf. The gem of the family is *D. glacialis*, and one of the easiest to grow. *D. neglectus* should wonder why it was so called, for it

deserves to receive great attention. The natives, *D. deltoides* and *D. cæsius*, are well worth their room, though the former is apt to spread untidily unless frequently propagated—a thing necessary to be observed with regard to the whole class. Some of the true alpine species, as *D. carthusianorum* and *D. arenarius*, have provokingly long flowerstalks. Some of the *Drabas* are so pretty in leaf that they are worth growing for that alone; but being early spring flowers, their flowers, though not showy, are acceptable. Amongst those which I grow *D. aizoides*, *D. bræutica*, and *D. glacialis* are the best. They grow slowly, and do best when left alone. They like to have a surface of fine gravel spread under them, and indeed there are few alpine plants which are not better for this. It keeps the surface of the soil open and moist, and prevents delicate leaves from being drabbed with wet.

The Campanulas are an indispensable genus of plants, but beware of some of them. *C. rapunculoides*, often found on old walls, is perhaps about the worst weed which can be had on a rockery; and *C. pumila*, from its habit of underground running, becomes very troublesome, though it is pretty. But there is one running kind which is so rare and so pretty that it has free leave to grow where it likes here, and other plants are arranged accordingly: this kind is *C. Allioni*. Other good sorts are *C. garganica*, *C. muralis*, and *C. isophylla*, names under which you will get a great variety of plants. They like living amongst the stones on the top. Do not neglect the native Harebell and its white variety, which is never obtrusive. *C. pulla* likes the foot of the rockery in moist soil; and in still moister spots, in peat soil mixed with sand, by all means grow together the two sweet little natives *C. hederacea* and *Anagallis tenella*, which I have often found wild in the same sod.

Catalogues of Alpines often contain a long list of *Arenaria*, many of which I have never seen, but I grow several sorts. The most remarkable is *A. balearica*, which runs over several square feet of sandstone—I cannot get it to grow on limestone—clinging quite close to it, and thriving alike on the horizontal and the perpendicular surface. *Arenaria verna*, with its stars of the purest white, wants a great depth of sand for its tap root, and then when established does well. *A. triflora* resembles it much, and is more easy to establish. *A. purpurascens* is also good.

We must not omit the Veronicas, the best of which, *V. rupestris*, shows a decided preference for limestone over sandstone. It wants a large surface, say at least a square yard, to show it off to advantage, and in June, when this mass is smothered with sky-blue flowers, your friends will come miles to see it; but it is a continuous bloomer, and still at the end of October the plants are gay with flowers. Do not confuse this plant with a native mountain species, *V. saxatilis*, of more compact and upright shrubby habit, and very neat. It has a red-flowered variety known as *V. Grievi*. *V. pectinata*, which also has red flowers and blue flowers, is worth growing for its elegant crimped foliage, but the flowers are early and abundant. *V. glacialis* is neat and compact. If you like plants with variegated leaves I hardly know a better than the variegated form of *V. Chamædrys*, which trails well over stones. Other variegations suitable for rockeries are the variegated forms of *Arabis lucida*, *Aubrietia*, and *Saxifraga umbrosa*. All these require to be watched, and any tendency to revert to the natural colour checked by nipping off the shoot, or it will carry with it all the growth and the variegation will disappear. I recommend also the tiny native *V. spicata*, quite different from the garden form of that name, and seldom growing more than 4 inches high. A clustering variety of it, *V. spicata corymbosa*, is one of the most profuse autumn flowerers I know. If *V. hybrida* could be grown as it grows on the rocks at Llandudno and Gloddaeth in Carnarvonshire it would be one of the best of rockery plants, but it loses colour in cultivation, though on the barren parts of the rocks it is worth its room. The side of our rockery facing south-east will of course have far more sun than that facing north-west, and I have perhaps not sufficiently distinguished between them. Many plants do equally well in both aspects. The Alpine and Himalayan Primroses, however, especially like to have their roots and leaves out of the hot sun, and should be planted accordingly. *P. denticulata*, *P. rosea*, *P. capitata*, *P. involucrata*, *P. viscosa*, and others too numerous to mention, should have many snug corners assigned to them. Leaf soil mixed deep into the loam helps them to do well.—C. WOLLEY DOD, *Edge Hall*.

(To be continued.)

EUCHARIS AMAZONICA.

AMONGST choice plants there are few that can excel the *Eucharis* in beauty and fragrance. The flowers are always welcome. It is easily propagated by division, and those in possession of a

few bulbs can easily obtain fine plants in one or two years. One advantage is, that plants can be brought into flower at any time of the year after they have made good growth and been rested. The compost I find most suitable is rich fibry loam, charcoal, fine bones, and plenty of silver sand to keep the soil open. The size of the pots employed should be regulated by the purpose for which the plants are required. One strong bulb in a 4-inch pot can be used for table decoration, and is very pretty surrounded with moss.—J. T. B.



HARDY FRUIT GARDEN.

THE recent frosts have caused many leaves to fall, therefore a commencement can be made in pruning, nailing, or tying the growths of fruit trees against walls. Beyond thinning the growths where too crowded, and shortening back any closely situated or elongated spurs, the knife should be used as little as possible at this season, as much reduction of the head will result in a corresponding increase of growth. In the case of the Morello Cherry the shoots should be well thinned, removing those that have borne fruit and have become bare of fruitful wood. Similar remarks apply to Apricots. Cherries other than Morellos will need only the removal or shortening-back of the old spurs as may be necessary from their extending too far from the wall. Apples, Pears, and Plums require similar treatment, seeking to maintain an equal distribution of spurs throughout the trees, and as close to the wall as circumstances admit. Old trees that have become a mass of crowded elongated spurs, and do not bear so freely as desirable, may have a portion of the old branches removed, and a young shoot taken up from near the base in the place of that removed. In this way old unfruitful trees may be well furnished with fruitful wood in three years. The shoots of young trees, or those in course of extension, should be laid in their full length, provided space admits and the shoots are sufficiently numerous, otherwise they may be cut back so as to give growths where needed. Pear trees infested with scale should be unloosed and dressed efficiently with train or other oil, which to be efficacious must be applied with a brush when the trees are quite dry. Cherry trees that have been infested with aphides should have all shreds or ties removed, and the wall as well as the trees washed with diluted tobacco juice and a solution of soft soap, 1 lb. to a gallon of water, to be further diluted with three gallons of water and one gallon of tobacco juice. Plum trees that have been infested with blue aphides may be treated similarly to the Cherry trees.

Any trees, whether against trees or in the open as pyramid, bush, or espalier Apple, Pear, or Plum trees that require lifting or root-pruning to check over-luxuriance and induce a fruitful habit, may now be taken in hand without fear of the wood shrivelling, as would be the case when the trees are very vigorous, and before the leaves had fallen. The distance from the stem at which the trench should be made will depend on the size of the trees and their vigour, for when very vigorous they will have stronger and fewer ramifications with fewer fibres near the base of the trees. Ordinarily 2 to 3 feet will be a safe distance for bush, pyramid, or espalier fruit trees, making a trench about 2 feet deep, and from this work under toward the stem so as to cut through any roots having a downward tendency. The loose soil must be removed with a fork over the roots, and a little at the outside of the ball, but no attempt should be made to remove the soil from the roots near the stem, and after paring smooth any jagged roots fill up the trench with fresh loam, laying in the roots carefully as the work proceeds, and ram the soil as firmly as possible. If the trees are found to be too deeply planted lift them carefully, apply some fresh soil well rammed down so that their roots at the stem will be about 6 inches above the surrounding level. This will bring the roots near the surface. The advantage of having the trees somewhat raised above the surrounding ground is considerable in heavy or

damp ground, but in shallow and dry soils level but not deep planting is advisable. The surface roots should not be covered more than 3 inches, and a good mulching of partially decayed manure given from the stem outward fully a foot further than the roots extend. Peach and Nectarine trees against walls not usually ripening the wood well, do much better if lifted as soon as the wood has become firm and the leaves give indications of maturity. Lift them entirely, removing the soil from the roots carefully, replanting them in fresh compost near the surface, and making the whole firm. This induces shorter-jointed wood, which seldom fails to mature and bear fruit satisfactorily.

Leaves should be removed from borders, and the surface soil may be pointed over lightly with a fork. The loose soil so formed, as well as the remains of former mulchings, can be scraped off, and a surface dressing of fresh loam and well-decayed manure in equal proportions applied, adding about a fortieth part of bone meal and a similar proportion of wood ashes or charred refuse, which, from supplying potash, is a good dressing for fruit borders. A little soil from the open spaces may be spread over the top-dressing, the other part of the border being pointed over. Trench ground for fresh plantations of fruit trees, and prepare stations for planting in orchards or elsewhere, pushing forward operations of this character whilst the weather remains favourable.

FRUIT HOUSES.

Vines.—Vines in pots started as advised in former calendars are now growing, and should have the temperature increased to 60° at night and 10° to 15° rise by day, and before the shoots become too long the rods should be secured in position. Disbud when the best breaks can be distinguished, and as the moisture from the fermenting materials will be considerable the necessity for syringing will be lessened. Keep the fermenting material replenished, bringing it up about the pots so as to secure to the roots a temperature of 70° to 75°. Water as required with tepid liquid manure, and for the present ventilate moderately, and when necessary afford it at the top of the house only. Frequently turn over the litter in the early house, replenishing as the heat declines with fresh litter direct from the stables. Hamburgs required to be kept as long as possible must have the atmosphere dry and the house ventilated very carefully in dull weather. In fine weather both front and top ventilation may be given, providing fire heat in the early part of the day, turning it off at noon, and closing when the pipes become cool, a temperature of 40° to 45° at night being sufficient. Muscats should have a temperature of 50° at night, admitting air freely when the weather is favourable, the atmosphere for these and late Grapes being kept dry. As the leaves fall Hamburgs and other thin-skinned Grapes can be pruned, thoroughly cleansing the house and washing and dressing the Vine rods, and surface-dressing the borders as advised in former calendars.

Pines.—Strict attention must be given ventilating pits or small houses containing young stock, for unless this is properly done the plants will soon become weakly. A night temperature of 60° to 65° by day from fire heat will be sufficient to keep the plants slowly growing through the winter, commencing to ventilate at 65°, and a free circulation of air should be permitted through the house or pit when external influences raise the temperature to 75°. Keep the plants near the glass and do not crowd them, the bottom heat being 80°. Suckers may be kept on the stools until starting time in March, in a moist pit with a bed having a slight bottom heat, and a night temperature of 55°, keeping them moderately dry at the roots. This plan is preferable to potting at this season.

Cucumbers.—During the ensuing three months ventilation will require careful attention; and whilst a little air should be given at every favourable opportunity, it should be excluded as far as possible when the external air is cold. When the sun is bright and likely to raise the temperature above 80° the top heat can be turned off, so as to lessen the necessity of giving air in quantity to keep the temperature down. Moisture in moderate quantity will be needed in the atmosphere in bright sharp weather, but in dull foggy weather be very sparing of moisture, ceasing to charge the evaporation troughs.

PLANT HOUSES.

Stove.—Gardenias to flower through the winter months, having completed the growth and set their buds, will need a brisk heat of 70°, the plants being placed as near the light as possible. With a sufficient stock of plants the fine fragrant flowers of these plants can be had all the year, but at no season are they more prized than in the winter. *G. intermedia* is the most useful and free-flowering. *G. Fortunei* also has large flowers, indeed the largest, but they are not so abundant as in *G. intermedia* and *G. florida*. Plants of *Eucharis amazonica* which have been rested for about six weeks, after completing growth, must be placed in brisk heat and well supplied with water to enable the plants to throw up the flower scapes at once, to ensure flowers for Christmas and the new year. Bouvardias to flower freely through the winter months require a brisk heat and plenty of light. Plants that are partially deciduous, such as *Allamandas*, *Clerodendron Balfourianum*, *Aristolochias*, *Combretums*, and *Bougainvilleas*, should be dried off, but it is not advisable to allow the wood to shrivel. *Stephanotis* will also need to be kept dormant by dry treatment, not suffering even if the leaves become a little soft, but they must not be allowed to shrivel, or they will fall off and impair the health of the plants; similar remarks applying to *Medinillas* and *Hoyas*. Plants of *Aphelandras*, *Francisceas*, *Luculias*, *Ixoras*, *Ipomœa Horsfalliæ*, *Tabernæmontanas*, and others of an evergreen character, or flowering during the winter months, must not be kept so dry, but have a sufficient supply of water to keep the foliage in good condition.

Ferns.—The temperature should be such as to induce rest in the plants, and the moisture proportionately reduced. Varieties of *Adiantum*, *Pteris*, &c., most in demand for decoration and cutting, usually appear in the fernery in numbers, and these when large enough should be potted in thumb pots, employing loam with a fourth of small crocks, which prevents the soil becoming sour and induces firm growth. Where the plants are not sufficiently numerous spores must be sown.

THE BEE-KEEPER.

BEE FARMING.

"CAN you tell me how to get information on bee-keeping on a large scale to make an income of, say, £300 a year on the average? Where is it carried on in Great Britain and America? What are the profits? And all other information useful to an inexperienced person who contemplates it as a livelihood?—W. M. B."

Extraordinary as the above inquiries may seem to many, they are no doubt the lawful issue of much of the gushing matter published in various books and journals by enthusiastic or interested writers. Occasional profits of hundreds per cent. are taken as fair proofs that bee-keeping must be an eminently profitable and safe pursuit; but taking our uncertain climate into account, it is doubtful if on an average of years bee-keeping in this country can be relied on as affording more than a fair ordinary return for the labour and capital invested. Under other conditions, such as obtain in more favoured climes, experienced persons have made handsome profits; but with the memory of certain notable failures still fresh, we can do no better than warn "W. M. B." against indulging in such airy visions as his queries involve. To be plain with him, we would say that his project is an impossible one under his conditions. No "inexperienced person" need attempt things on such a scale with any hope of success.

At the same time there is no reason why, under other conditions, even an "inexperienced person," provided he be possessed of capital, brains, and perseverance, may not succeed even better than "W. M. B." hopes to do. I am at present engaged in advising in a case that will illustrate. A shrewd commercial gentleman of means, casually called on to market honey from a certain favoured island, after two years and certain inquiries concludes that it will pay him to start a large apiary in the same locality. He sensibly takes the best advice he can obtain in his neighbourhood, and resolves to put the whole concern into the hands of the most successful practical bee-keeper whose services he can procure. Such a one I have just engaged in the person of my neighbour Mr. W. Mann, whose name is favourably known to the readers of this Journal—a bee-keeper who has both brains and hands, understands

all about bees, queens, and honey, can make all his own gear, keep his head in every emergency, and has been a most successful honey-taker for many years. Unless "W. M. B." is prepared to undertake a few years' training in the practice of bee-keeping, so as to get the needful experience, he must be prepared to entrust the management of an apiary to some such expert as I have mentioned. That is a first condition towards the £300 a year.

In the next place a suitable locality must be selected. I much fear the British Isles must be reckoned at best only a second-rate one. No doubt in certain seasons an apiary of a hundred stocks will yield the desired income in almost any county in England, Scotland, or Ireland; but such seasons are the exception. So far, then, as this kingdom is concerned, we would say, "Go slowly." If go he must, "W. M. B." should select the best known honey locality—such as County Waterford, in Ireland. I visited it in 1879 on a tour of observation, and, after seeing the length and breadth of the three kingdoms, I concluded County Waterford, specially the neighbourhood of Clonmel, the best honey locality I had ever seen. Messrs. White & Son, Grocers, Waterford, told me they had sold 40 tons of drained native honey in 1878, and I believe they sold 30 tons this year. Taking into account the miserable system of bee-keeping that produced such results in the case of only one house, I have no hesitation in recommending the neighbourhood as the best in these islands. The enterprise I have already referred to is, I consider, safe as far as this point is concerned; the locality selected is all that could be desired.

"W. M. B." may rest assured that American bee-keepers have their difficulties as well as we. Although Harbison of California has more than once harvested over 100 tons of honey in a season, even there there are poor seasons, of which the past has been one, so poor that many stocks died of starvation. The eastern States suffer dreadfully from winter death, and the southern have not been fully proved.

In the next place bee-farming must be conducted according to the system most suitable for the locality. A style of hive must be chosen, the dimensions of which, form of frame, and general adaptability, are according to certain laws known only to the experienced, and varying with the locality and the object aimed at—viz., comb or extracted honey. To save labour and multiplication of appliances only extracted honey or only comb honey should be worked for, according to prices, risks of transit, &c. As meeting the case of a warm climate where swarming is difficult to control, the apiary I have referred to is to be run wholly for extracted honey, the price of which, even on the spot, is so good as to make it greatly preferable to a necessarily smaller quantity of comb honey with all its risks in transit.

Such are a few of the points on which "W. M. B." or others like-minded should post themselves. The fullest information on bee-keeping on a large scale can only be obtained by perusing such works as "Cook's Manual" or "Root's A B C of Bee-keeping," American books sold by George Neighbour & Sons, 149, Regent Street, and other hive-dealers.

Should "W. M. B." propose to manage his intended apiary himself, dispensing with the services of an expert, he cannot do better than commence with three or four stocks in his own neighbourhood, and by practice and reading he will in the course of a year or two be in a position to judge for himself regarding the practicability of his larger proposal.—WILLIAM RAIT, *Blairgowrie*.

CLARIFYING HONEY.

In taking honey it is desirable to save it from the taint and stain of farina. It is rather difficult to do this without loss of honey, as both honey and pollen are found together in the central combs of a hive, often in the same cells. If the honey be taken from the combs by pressure, and then run through a bag of muslin or cheesecloth, the danger of having the honey made impure by farina is great, and if the combs are broken by using a knife, and placed in a bag or strainer without pressure, the danger of having impure honey is greater in our opinion. Pure honey has not the taint of farina. If the cells of farina be broken by pressure or by cutting in taking honey there will be some contamination—the colour and taste of the honey will be both injured. We desire quality rather than quantity. Many combs with farina in them are placed aside for feeding purposes. Some weeks ago a gentleman in Lincolnshire offered to sell me a hundredweight of honey in bottles at a reasonable price. Knowing the gentleman had an extractor for taking the honey, and believing that his was good and pure, I ordered twenty-eight bottles of 4 lbs. each of honey. The honey arrived, and I found it to be a mixture of clover and ketlock honey injured by farina. If the honey had been purely taken it would have been very good. Doubtless the bees gathered both sorts simultaneously, and thus mixed them. Let me here say that

ketlock honey is rather strong-tasted, and not equal in any way to clover honey.

We now come to the point of clarifying impure honey. I have heard that honeycombs can be whitened and improved in appearance by the fumes of sulphur, and that some Irishmen who carry combs about the streets of English towns for sale resort to the sulphur-cleansing process. About clarifying run honey I have something to say. A few months ago I took a leaf out of the book of an American gentleman on a visit here. He described very minutely the process adopted in America for extracting maple syrup and preparing it for table use. In boiling it the white or gluten of eggs was largely used in clarifying it. It struck me that the white of eggs may be useful in clarifying honey. I have tried it and found it to answer fairly well. It clears and improves the honey much by uniting with the impurities in, and carrying them to the top of, the honey in a thick scum; and if this scum be allowed to cool it will become rather tough, and may be taken off like a piece of leather or strong paper. By this it will be seen that the honey is warmed and stirred with the gluten. Honey should never be allowed to boil. How many eggs should be used to a stone of honey? I am a novice in this work and cannot yet tell. I have so far used the white of one egg to a stone of honey. Probably more gluten may be used with advantage if the honey is strongly tainted with pollen.—A. PETTIGREW.

TRADE CATALOGUES RECEIVED.

Osborn & Sons, Fulham, London.—*Catalogue of Shrubs and Trees.*

Hogg & Robertson, 22, Mary Street, Dublin.—*Catalogue of Trees and Shrubs.*

Francis and Arthur Dickson, The Upton Nurseries, Chester.—*Catalogue of Forest and Ornamental Trees.*

James Dickson & Sons, Newton Nurseries, Chester.—*Catalogue of Roses, Trees, and Shrubs.*

S. Mahood & Son, Lower Richmond Road.—*List of Chrysanthemums.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Salvia nemorosa (S. M. & A.).—This is no doubt the plant to which you refer. It is a native of Southern Europe and the East. The species was named by Linnaeus, and appears to be synonymous with *S. sylvestris*, also of Linnaeus.

Vines Unsatisfactory (J. T.).—So far as we can judge from your letter and the wood you have sent, we think the state of your Vines arises from either drought at the roots or overcropping, or both combined; and further, we think the house has not been judiciously ventilated.

Dracænas for Greenhouse (Vindex).—The following will succeed in an ordinary greenhouse:—*D. congesta*, *D. rubra*, *D. atrosanguinea*, *D. Draco*, *D. luicata*, *D. australis*, *D. nutans*, *D. (Cordylina) indivisa*, and *D. Veitchii*.

Treatment of Orchids (Constant Inquirer).—The Sophronites can be grown either in a small basket or on a block, and requires a moderate supply of heat and moisture at all seasons. If your plant is quite healthy we cannot understand why, with the treatment you have given, it does not flower. Suspend the basket near the glass. The non-flowering of the *Dendrobium* is probably due to the growths not being fully ripened. Place it in a light position.

The Orchid Album (J. E. B.).—This work is published by Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, in monthly parts, price 5s. each. The coloured plates of the first part, which is the only one we have seen, were very well executed.

Damaged Cucumbers (C. E.).—The box forwarded did not contain any insect, but some specimens of a small land shell. If this mollusc is really the cause of the injury complained of it can only be dealt with as other molluscs (snails, slugs, &c.), are, by applying what remedy you think best under the circumstances, and this your experience will enable you to determine.

White Grapes (A. Roberts).—So far as we can judge from the much-shaken and injured specimens, of which not one sound berry reached us, the variety is the Golden Champion; it is, we feel certain, not Buckland Sweetwater.

Schinus Molle (Edith).—This shrub is not deciduous, and your specimen is doubtless unhealthy. You do not say whether it is in a pot or planted out. If planted in good soil in a light conservatory it ought to grow large enough to produce flowers and fruit. We are unable to answer your second question

relative to the date of the last edition of the work you name, but you can obtain the information by writing to the publishers, Messrs. Bradbury & Evans, Bouverie Street, London.

Potting Lilliums (J. J. M.).—A compost of two-thirds of turfy loam and one third of turfy peat with sufficient sand and crushed charcoal to keep the soil porous will be suitable. The bulbs may be potted now, surrounding them with sand, and covering them an inch or more deep. If you place them at once in the pots in which they are intended to flower the pots should not be quite filled with soil, but space should be allowed for top-dressings. If the pots can be buried in moist cocoa-nut fibre refuse or ashes there will be less danger of the bulbs being injured by mistakes in watering. A cold frame or the floor of a greenhouse will be suitable for accommodating the pots until the plants commence growing, when they must have a light position and abundance of air. They thrive well plunged in ashes in the open air in summer—better indeed than in a greenhouse, unless the structure is very light.

Fuchsias in Winter (F. M. S.).—"Summer-struck Fuchsias" is a term having such a wide application that we hardly know how to answer your question. We have summer-struck plants that have flowered freely and are now ripening their wood. These we shall allow to rest during the winter, but they will not be dried excessively. We have other plants in 4-inch pots that have not flowered. These are now a foot high and growing freely. Their growth will be continued in a light house in which the temperature will seldom fall below 50°, and they will make fine specimens next year.

Tuberous Begonias (Idem).—As soon as the plants have ceased flowering, or are waning in freshness and beauty, gradually diminish the supply of water, giving less and less as the foliage changes and falls. If they are placed on a moist base in the winter the soil will probably absorb sufficient moisture to keep the tubers fresh; if on a dry stage, they may need watering occasionally to prevent the soil becoming dust-dry. Very small tubers are more likely to shrivel than larger ones are, and there is the greater necessity for exercising care in preserving them. They may be wintered in an ordinary greenhouse.

Bush Fruit Trees (A. Yorkshire Rector).—Most of the Apples and Pears named on page 367 will succeed as bushes, but Blenheim Pippin grows too strong for that method of culture. Better Pears can be named than those submitted for orchard trees. It will probably be to your advantage to state the number of trees you require of Apples, Pears, and Plums respectively, and varieties adapted for your purpose and district will be selected.

Wire Trellis for Vinery (F. J.).—The wires for forming the trellis should be the best drawn and annealed No. 6, and fixed lengthwise of the house, and at from 16 to 18 inches distance from the glass. No cross or upright wires are needed, but you will need 1½-inch angle iron at each end, pierced with holes at 9 inches apart to admit the wires, and bolt holes for securing the angle iron to the woodwork at the ends of the house. In addition to these you will require guide iron bars three-quarters of an inch by a quarter of an inch, pierced similarly to the end or straining iron angle bars to allow of the wire being passed through at the proper distance apart and from the glass, three stays being sufficient for each. The bars may be fixed 4 feet apart, or as near thereto as the rafters admit. The wires are threaded at each end and tightened with thumb-screws. We should plant the Vine at one end, it being immaterial which, and train the rod along the front and take growths from it at 4 feet apart for furnishing the trellis, and half that distance from each end. The Vine may be lifted carefully now and planted, or it may be deferred until late March or early April.

Red Spider on Vines (W. B. C.).—We doubt if any remedy is so good as the one we named when the foliage is seriously infested with the insects; but there is no reason why the pest should be allowed to increase to the extent that your letter appeared to imply, since pure water applied regularly with the syringe, a genial atmosphere, and proper ventilation, will keep it in check. If the Vines are properly syringed daily, or even twice or thrice a week, except when they are in flower, until the Grapes commence colouring, red spider will do little or no injury. The vapouriser was advertised by Mr. Wells, Earlswood Nurseries, Redhill, Surrey, and its price is 15s. So far as we can understand the case of the young growths dying, it arises from the sun extracting the moisture from them faster than it is supplied by the roots. Is the border sufficiently moist at the time of the injury? If it is you must apply shade to prevent evaporation; you probably did not apply it soon enough before.

Primulas Unhealthy (W. M.).—The small worms are doubtless the cause of the injury, and have been introduced with the leaf soil. The only remedies we can suggest is to first try perfectly clear lime water, made by pouring a gallon of water on a lump of fresh lime weighing from half a pound to a pound, and removing the scum after standing for a day or two; or, if this fails to destroy the worms, mix a fluid ounce of paraffin with two gallons of water, minding that the mixing is effectual by violent agitation, and with this water the plants. You had better, however, try its effects on a few at the first and note the results.

Stoves for Heating Vinery (T. G., Co. Dublin).—We cannot advise the use of such stoves as you name for the purpose in question, nor do we think there are any stoves made that would answer your expectations. You say "hot-water pipes cannot be used without starting the other houses." Perhaps if we had a correct plan of the houses and their appurtenances we might see a way of overcoming the difficulty. We have seen so many instances of things that "cannot" be done, and which were afterwards accomplished, that induces us to think we have not seen the last; still, for all that, you may be correct in your judgment. Stoves heated with oil would certainly not be safe.

Wall Trees (J. H. B.).—Your first question is unanswerable, as everything depends on the age and size of the trees as to whether they can be transplanted or not. Trees of the form you have sketched are admirably adapted for furnishing vacant spaces on walls, and are largely and successfully grown for that purpose. Cordon trees have only one stem, studded with fruit spurs from base to summit. If you cut a long straight branch from one of your trained Pear trees it is the exact representation of a cordon tree minus the roots. These trees are well adapted for filling vacancies on walls, or for covering walls entirely, and may be trained either vertically or obliquely, the latter method being generally preferable.

Scale on Ferns (M. L. W.).—The fronds you have sent are much infested with scale, which you will find extremely difficult to extirpate. The quickest and perhaps the best plan would be to remove the fronds and burn them, removing also the surface soil from the pots and adding fresh. New fronds would soon spring up, and the plants would be better and cleaner than they are now. Possibly, however, only some of the fronds are infested, and in that case it may not be necessary to remove all. We once destroyed scale on plants similar to yours by dipping the small plants in a solution of softsoap as hot as the hand

could be borne in it for a moment, and the large plants were laid on mats and syringed; every stem was then reached, and the solution did not drain into the soil. About 2 ozs. of the soap was dissolved in a gallon of water, but Gishurst compound or nicotine soap would do as well, perhaps better.

Myrtle Unhealthy (*H. B.*).—If you closely examine the under sides of the leaves you will find close to the midrib a number of scale insects. They are not very conspicuous, but are plainly visible to the trained eye of a gardener. These insects must be destroyed, and the upper surfaces of the leaves must be cleansed of the dirty incrustation that adheres to them. You allude to the Myrtle as a tree. If the "tree" is only 2 or 3 feet high it will not be tedious process to sponge every leaf with warm soapy water, dislodging the scale as the work proceeds with a pointed stick if necessary. This will undoubtedly prove the best remedy; but if your tree is many feet high the work would certainly be tedious. The sprays, however, do not suggest that they have grown on a large tree planted out, but on a tree in a pot, that not only needs thoroughly washing, but also additional support either from fresh soil or more copious supplies of water. It is certainly in a very weak and unsatisfactory state. After sponging the leaves as directed the plant should be well syringed with clear water.

Asparagus in Heavy Soil (*H. W.*).—Undoubtedly drainage is essential in your case, but we should not excavate deeply; and if the site is very wet and the rainfall considerable, drains with good outlets should be provided for carrying off the water, otherwise excavations, even with brickbats in them, become mere watertraps. You must also obtain lighter soil, such as decayed leaves and garden refuse of any kind, and if you can burn the soil where the beds are required it will improve it greatly. For fuller and practical information on growing Asparagus we refer you to page 543, No. 25, vol. i., third series, the issue of December 16th, 1880. If you do not possess this number it can be had from the publisher in return for 3½d. in postage stamps. It contains information that will be of much service to you in endeavouring to grow Asparagus in heavy soil.

Paraffin Stoves for Heating (*A. Reader*).—We are not aware of anything better than good paraffin for burning in the stove you name. There is no doubt of the desirability of having a pipe to carry off the fumes produced by combustion, as these are injurious to plants. We, however, do not think a house 23 feet long can be efficiently heated with a paraffin stove, especially if the winter proves long and severe. Some plants can doubtless be kept alive, but their healthy growth is another matter. A small boiler and two rows of 3-inch pipes would be far more effectual, and a house of the dimensions of yours is well worth such an apparatus. If, however, you decide to try stoves you must have at least two, and we much doubt if they will give you the satisfaction you expect.

Protecting Standard Roses (*J. W. A.*).—It would have been far better if the buds had not moved at all. If the winter proves very severe you will have great difficulty in preserving those "just in leaf, and others showing incipient growth." If you have dry fern in readiness and envelope the stems as well as the tops when sharp frosts occur you may save a number of the Roses, but we should do what you propose with those you are "particularly anxious" to keep—namely, pot them at once. Be very careful that the roots are not dried during removal, and pot firmly in a compost of two-thirds loam and the remainder wood ashes or leaf soil. Give a good watering, and afterwards maintain the soil in a healthy moist condition. The Roses after being potted will be better outside than in, so long as the weather is mild; and a few degrees of frost will do no harm, especially if fern is packed round the pots. There is danger in over-protection—that is, placing the Roses in too warm a temperature, and keeping them there for three or four months. As you do not say what your conveniences are for wintering them we cannot give you more precise information; but if you have not a suitable place for storing them in pots it would be preferable to dig them up, laying them close together with their roots carefully packed in soil, and then cover the plants with fern or straw in thickness proportionate to the severity of the weather. We have preserved many Roses by this practice, but the work needs to be done well, and judgment exercised in applying and removing the covering.

Names of Fruits.—We have many times notified that only six varieties of fruits can be named at once; still large packages reach us, the contents of which cannot be examined. Some fruits are not named because the sender's name does not accompany them, and we cannot always determine to whom the respective parcels belong, even by the aid of letters received by post. Pears, we have previously intimated, ought to be ripe or approaching ripeness when sent, or a number of them cannot be identified. All packages must be carriage paid; unpaid parcels are sent every week that are not taken in. The fee for naming fruit to non-subscribers is 5s. It is important that these conditions be attended to for preventing disappointment. (*R. S.*).—1. Red Doyenné; 2. Easter Beurré; 3. 4, not known—worthless; graft them with better sorts; 5. Nonveau Poiteau; 6. Thompson's. (*G. S., Sandbeck Park*).—3 and 8, Baxter's Pearmain; 5, Rhode Island Greening; 6, Minchall Crab; 7, Hunthouse; 9, Small's Admirable; 12, Emperor Alexander. (*A. B.*).—We are sorry we cannot recognise your Apple. (*A. S.*).—1. Old Pomeroy; 2. not known; 3. Monkton. (*C. G.*).—1. Boston Russet; 3, Keswick Codlin; 4, Barton's Free Bearer; 5, Gogar Pippin. (*Edward Leigh*).—1. Fearn's Pippin; 2, Franklin's Golden Pippin; 4, Bishop's Thumb. The others we do not know. (*Reader*).—1. Napoleon; 2. Ne Plus Menris; 3. Pigeon. (*Dr. Francis*).—1, not known; 2, Swan's Egg; 3, Catillac; 4, Golden Pearmain; 5, Cornish Aromatic. (*J. T.*).—1. Wormsley Pippin; 3, Margil; 4, Mère de Menage; 6, Ecklinville; 7 and 11, Dumelow's Seedling; 9, Gloria Mundi. (*Leon*).—We have taken great pains to name the fruit sent, and are unable to recognise any of the specimens with certainty. (*V. T. M.*).—Red Ingestré. (*N. J.*).—1, not known; 2, Reinette de Canada; 3, Fearn's Pippin; 4, Norfolk Beefing; 5, not known; 6, Selwood's Reinette. (*S. T.*).—Pears.—1, Beurré Diel; 2, Winter Nelis; 3, Aston Town; 4, Brown Beurré; 5, Doyenné Boussoch; 6, not known. We have attended to all the fruit we have received, except two boxes, and we have no means of knowing by whom they were sent.

Names of Plants (*J. B.*).—Pinus Hartwegi. (*W. E. B.*).—1, Selaginella Walliehii; 2, Selaginella cuspidata (typical form); 3, Selaginella hamatodes; 4, Davallia canariense, var.; 5, Polypodium plesiosorum, var. appendiculatum. (*Great Marlton*).—Streptocarpus Rexii. (*A. S.*).—Curculigo recurvata. (*W. G.*).—1, Asplenium marinum; 2, Adiantum cuneatum; 3, Pteris serrulata; 4, P. argyrea. (*X. Z.*).—1, Cestrum aurantiacum; 2, Lonicera sempervirens; 3, Crowea saligna; 4, Acacia platyptera; 5, Cocciloba platyclada. (*W. R.*).—1, Bertolonia Van Houttei; 2, Fittonia Verschaffeltii; 3, Cyrtopodium insignis.

COVENT GARDEN MARKET.—NOVEMBER 16.

THE supply of home-grown Apples has fallen off this week, but with some small consignments from Canada prices remain the same, except for the best produce, which is in better demand. Kent Cobs firmer.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	1 0 to 4 6	Lemons.....	per case 18	6 to 9 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	1 0 2 0
Cherries.....	per lb.	0 0 0 0	Neectarines.....	dozen	0 0 0 0
Chestnuts.....	bushel 16	0 0 0 0	Oranges.....	per 100	0 0 0 0
Currants, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	6 0 0 0
„ Red.....	½ sieve	0 0 0 0	Pears, kitchen..	dozen	1 0 1 6
Figs.....	dozen	0 0 0 0	dessert.....	dozen	1 0 2 0
Filberts.....	per lb.	0 0 0 0	Pine Apples....	per lb.	3 0 5 0
Cobs.....	per 100 lb.	75 0 77 6	Strawberries...	per lb.	0 0 0 0
Gooseberries....	½ sieve	0 0 0 0	Walnuts.....	bushel	7 0 8 0
Grapes.....	per lb.	0 6 4 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	per lb.	0 3 0 6	Onions.....	bushel	3 6 5 6
Beet, Red.....	dozen	1 0 2 0	pickling.....	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley..... doz.	bunches	3 0 4 0
Brussels Sprouts..	½ sieve	2 0 2 6	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushel	2 6 4 0
Carrots.....	bunch	0 4 0 6	Kidney.....	bushel	3 0 4 6
Capsicums.....	per 100	1 6 2 0	Radishes..... doz.	bunches	1 6 2 0
Cauliflowers.....	dozen	0 0 3 6	Hubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsify.....	bundle	1 0 0 0
Coleworts..... doz.	bunches	2 0 4 0	Scorzoneria.....	bundle	1 6 0 6
Cucumbers.....	each	0 4 0 6	Seakale.....	basket	2 0 2 3
Endive.....	dozen	1 0 2 0	Shallots.....	per lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 0
Garlic.....	per lb.	0 6 0 0	Tomatoes.....	per lb.	0 8 0 0
Herbs.....	bunch	0 2 0 6	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 1



POULTRY AND PIGEON CHRONICLE.

STABLE ACCOMMODATION FOR HORSES.

(Continued from page 439.)

WE have one more quotation to make from Mr. P. H. Frere's essay on the improved construction of stables, published in the "Royal Agricultural Society's Journal" in 1864, because it has reference to a plan of box stabling which we had practised previously for seven years or more. He states, "When I last visited Mr. Lawes's farm at Rothamsted, the cart-horse stabling struck me as almost perfect, though obtained by the conversion of a wide, old, boarded cart-lodge into horse boxes in a homely style and at a very moderate expense. These boxes, ten in number, form a double row, with a raised walk 4 feet 6 inches wide down the centre. A shed at one end acts as a store for hay and straw, and likewise holds the chief part of the harness. Stout iron rods are used for the sides of the boxes; the wooden pillars, which form two corners of each box and range along the central path on either hand, afford a great stay and support to the old defective roof; each horse has his own rough door opening to the outside, so that he never disturbs his neighbours. The building is detached from the yards, so that one objection connected with stables opening inwards on farm premises does not here arise—viz., the horses when they go in and out for work or water do not disturb any other stock in the yard. There is louver boarding over each door, the litter on the top was clean, the air sweet, without a trace of ammoniacal gases; yet, when Mr. Lawes called for a fork and stirred the bedding from beneath, a moist mass appeared reeking with the strongest vapours. I have seen of late spacious costly halls for stabling cart nags, where neither the ventilation, the standing, nor the appliances for making and removing manure were half as satisfactory as those of Mr. Lawes."

We have thought it well to notice this matter, as it gives a hint of utility for home farmers, under certain circumstances, for the management of farm horses, and likewise to some extent leads up to practices which we have utilised in the stables for horses employed in fast work. Before relating this, however, we shall

refer to those plans of internal accommodation for horses as recommended by some firms, and which are now much in fashion, and generally approved by noblemen and gentlemen who possess horses of the greatest value; we shall, therefore, notice the stable fittings, including horse boxes and stalls, &c., as sold by two important houses in the trade—viz., Messrs. Collam & Co., and the St. Pancras Ironwork Company. Although there are other firms and companies who can supply all the requisites for stabling, yet we have selected these merely as illustrations of what the trade can supply.

The different style of loose boxes and stalls of various patterns and combinations of plans offer not only the most approved of the day, but of the most fashionable appearance as well as utility in practice; for at present the plan is to provide the most impervious floors to either stalls or boxes with a drainage, by covered gutters from the apartments, into a trapped main which will clear away the liquid manure and fine sweepings into tanks and conveniences of various forms situated outside the buildings. There are also various devices illustrated for the conversion of stalls into loose boxes, and *vice versa*, by ingenious and simple methods. The division of the stalls or boxes are for the most part composed of wooden panels surmounted by iron grating of various patterns; but boarding is best fixed with seasoned wood, which is fixed in iron frame and sill by the patent wedge plan, in order that when repairs are required it is easy to remove the wedge and replace new boards. There is, however, a patent sill made with groove to receive boarding for the division of stalls or boxes, and also for ventilation, by means of the opening in the sill. However perfect the ventilation of a stable may otherwise be, if the ammonia and gases generated on the floor underneath the litter cannot escape there will always be some foul air retained, which it is the object by the improved sill to remove. We must now refer to the floors of both stalls and boxes which are now recommended, and in general use in some of the most important establishments where valuable horses for fast work are kept.

This subject is alluded to in a very practical manner by the St. Pancras Company. Speaking of paving and drainage they say, "There are four important points to be considered in relation to paving—1st, strength and durability; 2nd, cleanliness; 3rd, safety; 4th, good appearance." Colonel Fitzwygram in his book, "Horses and Stables," says, "The material required for really good paving must be non-absorbent, watertight, easily cleaned, durable, and not slippery. It is not, however, easy to find a material which combines all these requirements." The St. Pancras Company believe that their last invention completes a system of paving which supplies Colonel Fitzwygram's desideratum in the fullest manner. The bricks sold and recommended by them are perfectly non-absorbent, and when properly laid on concrete and carefully grouted at the joints with Portland cement form a perfectly non-absorbent floor and watertight surface, through which no moisture can penetrate. They are made of the hardest materials that can be obtained. The clays are specially selected, and burnt at the highest temperature, the bricks are therefore hard and most durable; they are also gritty as well as hard, so that they will not polish in wear and become slippery. These patent bricks have been used in Her Majesty's stables for many years past, as they are found to be the most durable of any yet tried. Two faults are common to all ordinary forms of bricks, except the perfectly plain ones—namely, that the drainage passes along channels formed at the joints, and is therefore very liable to soak into the foundations, and that the chequers or cross-grooves retain dirt and wet in spite of sweeping. Both these faults are avoided in the new patent form of brick. When this is used the drainage runs along the solid impervious brick, only occasionally crossing a thin joint; and as there are no cross grooves one sweep of the besom sends all the dirt down immediately, and the semicircular form of the groove itself prevents dirt sticking at the bottom of it, as it always does more or less in angular grooves. The grooves in these patent bricks present the most perfect foothold for the horse in rising. Another advantage is that they carry away the wet so readily of themselves that they can be laid with much less fall than common paving requires. There are three principal colours used—viz., blue blaek (Staffordshire), brown (Welsh), and orange or yellow (clinker). The last-named give a very cheerful appearance to a stable, passage, or yard, and the colour improves in use.

We note that as regards the drainage either of stalls or boxes that the patent surface drain can be made either open or covered with wrought iron, the advantage of which in respect of strength, straightness, fewness of joints, and safety is fully apparent; and that this patent gutter used with syphon drain pot, and with the patent bricks, makes probably the most perfect surface drainage for stables ever devised. In some plans we note that the surface

gutter is carried up to the point where water can be received direct from the drinking trough, and the waste water running down the gutter carries with it the urine, and tends thus to purify the atmosphere of the stable. We also note that Butterworth's registered dip trap, being designed as a sanitary drain pot, is made with a syphon trap cast in one piece with the pot, so that it cannot get out of order, and is always self-acting—a matter of great importance. Notwithstanding the various devices for ventilating stables it is, we think, advisable to have inlets for fresh air—such as perforated bricks or air tubes—under the racks or mangers, in order that a current of atmospheric air may carry the foul air up to the roof of the stable, where the outlet may be of various plans. The latest device we have noticed is Kite's patent roof-ventilator, as applied to the roof of any stable or cow house. We have given these lengthy details because, before concluding this important subject, we shall have to relate the details of plans for stables of a totally different character from those above described.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The chief work is still in connection with ploughing and seeding the land with Wheat where root crops may have been fed off by sheep, such as common Turnips, Rape, and also where Carrots or Mangolds may have been removed. If the land be light we recommend ploughing and pressing and sowing broadcast in preference to ploughing and drilling, because the seed will be buried deeper than when drilled, and in consequence will maintain a better hold on the subsoil. On the stronger lands it may be well to drill the seed at a wide distance, say 10 or 12 inches between the rows, for such soils are often infested with weeds in the spring, in which case the only way to obtain a full crop is by using the horse-hoe to destroy the weeds and to move the surface of the soil. This is often more important than an application of manure, simply because the weeds are destroyed and the surface soil effectually moved by one operation. Sow Wheat on land that has been cleared of a crop of Potatoes, but in case this should be delayed by adverse weather we would wait until spring and sow White Canadian or other early best white Oats. In case the Potatoes were grown with artificial manure the land should receive a moderate coat of box-made dung. This will answer better than reversing the manure, because the season is delayed too much by carting and spreading dung before planting Potatoes. The same plan may with advantage be adopted with Mangolds, unless the yard or box manure can be laid out and ploughed in during the winter; for in this way there is no hindrance at seed time—a matter of great consequence to the Mangold crops. In all the land intended for roots next year, especially Potatoes and Mangolds, which has been autumn-fallowed, a few bunches of couch are frequently left. These, before the winter ploughing takes place, should be forked out by the women, as 2s. 6d. expended in this way often saves the outlay of 20s. worth of horse labour, besides saving valuable time at the sowing or planting season.

Hand Labour.—This will now consist of filling and spreading dung, making out water furrows on the Wheat land recently sown. Men should also go spade in hand after a heavy rain and examine the water furrows which may have been partially blocked by the silt collected in them, which will require to be removed with the spade. All the root crops, as fast as the leaves fall, should be examined, and any bunches of couch grass forked out before the sheep are folded on the land; for after the sheep have trodden these lumps of couch into the land the opportunity for forking it out may be lost entirely by other work intervening. Draining work and trenching the meadows may now be done with advantage. In the irrigated meadows the drowner should be employed making out the leading and drawing trenches, for the water should now be laid on so that the first floods which occur may be thrown over the meadow, and thus the deposit of silt, always left by the first floods of the season in the largest and most valuable proportion.

Live Stock.—As we are making these notes in the first week in November we still recommend that wherever the Clover seeds and Italian Ryegrass are of sufficient bulk for cutting they should be used for horses or any other cattle. We are now doing this on the home farm with great benefit to the animals, and with much more advantage to the grass plant than feeding off by sheep, as they cannot be trusted to feed fairly, but actually eat out the crowns of the Clover plants. No sheep should be fed on Clover after the 1st of November. We are using the Mangold leaves and Carrot tops for different animals, including breeding sows in the yards, which do well upon such food with a few peas or beans in their troughs twice a day. We may now expect lameness more or less amongst the sheep after the heavy rains peculiar to the period, and should be prepared with the remedy as fast as they break down. The latest remedy advised for washing the feet is with carbolic or salicylic acid dissolved in water; and if the infested animals' feet are dressed on the second day after it is noticed, and they are placed on dry grass land by themselves, they will soon recover without the disease spreading amongst the flock. This is now an interesting period for the owners of the best Somerset horned ewes,* for in many flocks more than half the sheep have lambed. There is probably no stock which will pay better

for good shepherding than these beautiful animals and their lambs, for some of the latter will be ready for the butcher at Christmas where they have been well fed and cared for. Wether sheep and tegs have been doing well since harvest whilst feeding on Turnips, Rape, or Thousand-headed Cabbage. The weather having been favourable they have not required so large a quantity of cake as usual. The in-lamb ewes, both Hampshire and Dorset downs, should now be kept fairly well; but at no time should they be allowed as much as they could eat of Turnips. Rape is not good for them, but Thousand-headed Kale is the best for them with a run upon old lea during part of the day.

BIRMINGHAM CATTLE AND POULTRY SHOW.—We publish below the number of entries for the ensuing Show on November 26th, 28th, 29th, 30th, and December 1st—namely, Cattle, 161; Sheep, 88; Pigs, 58; Corn, 55; Roots, 124; Potatoes, 104; Poultry, 2409; Pigeons, 902.—Total 3901. The gross total is the largest ever received since the Society was established, and the resources of the hall will be hardly taxed to find room for the whole. The increase is pretty general in every section, roots and pigs excepted, and these are fully up to the average.

CLONMEL ROOT AND FRUIT SHOW.—Probably many readers of the Journal who may have heard of the state of tension betwixt classes in many parts of Ireland, will be surprised to find that our Show here this year has been the best ever held, both in the number of the exhibits and the extent of the collections as well as their superior merits. The roots, too, were admittedly the finest ever shown, and it is worthy of observation that the unusually large specimens and those that showed unmistakable signs of having been forced unduly, were, when examined by the judges, found to be rotten at the core, or unfit for keeping purposes. This applies generally to Turnips, Mangolds, Carrots, Parsnips, and Cabbages. I noticed, too, that when we came to the large number of exhibits grown for the prizes offered by the Messrs. Sutton, Reading, England, that, though the Turnips and Mangolds were of unusual size, they were invariably sound.—W. J. M., *Clonmel*.

THE HULL AND EAST RIDING CATTLE AND POULTRY SHOW.—The sixth annual Exhibition will be held in the Rifle Barracks and Grounds, Londesborough Street, Hull, on December 13th, 14th, 15th, and 16th. The prizes include a piece of plate, value £25, or that amount in money, for the best beast in classes for tenant farmers; a piece of plate, value £50, or that amount in money, for the best Shorthorn in the open classes; a piece of plate, value £50, or that amount in money, for the best Scotch or crossbred beast in the open classes; the challenge plate, value £100, for the best beast in the Show; also a large number of pieces of plate or silver cups in other classes. All entries close on Monday, November 21st. Entries for poultry, Pigeons, and Rabbits will be received up to Wednesday, November 30th, on payment of 1s. extra for each entry.

POULTRY AND PIGEONS

SPRING CHICKENS.

WE wrote a week or two since of January chickens for exhibition, we now add a few words as to early chickens for table. In the spring and first part of the summer chickens fetch exceptionally high prices in the market, and those who have a suitable place for rearing a few clutches in the winter months will find their extra trouble amply repaid by the larger return obtained.

Those who intend to rear any number of early chickens for table will find it pay them to procure some pure-bred birds to cross for this purpose. A few Brahma or Langshan pullets mated with a short-legged Houdan or Dorking cockerel will produce chickens that will grow rapidly, feather easily, and put on flesh sooner than almost any other cross or any pure breed. A cross between a Game cockerel and Dorking pullets will also be found to produce a plump hardy chicken of very delicate flavour. The produce of this cross do not grow so rapidly as the Dorking-Brahmas or Dorking-Houdans.

It would not pay the poultry keeper who only means to rear a few chickens to incur the expense of an entire breeding yard. His best plan will be to purchase a cockerel of some pure breed and cross him with the best laying hens or pullets selected from his own stock. If the hens are of good size a Brahma cock may be used; if they are not large a medium-sized Dorking, Houdan, Crève Cœur, or Scotch Grey will be more suitable.

As for chickens intended for table there is no necessity to have them hatched after the commencement of the new year, the setting may now be commenced as soon as eggs can be had. If an incubator is used it will be well in placing it to guard specially against draughts. When the egg-drawer is taken out

to cool the eggs it must only be left out about ten minutes, and the eggs must not be exposed to excessive cold. A thin piece of flannel thrown over them will obviate the risk of a chill from exposure. If the eggs are set under hens the nests should be placed in some warm corner, and be formed of dry ashes or earth covered with an ample supply of fine straw. Nine, or at most ten, eggs should be the number allowed to an average-sized hen. The hens should not be permitted to remain long off their nests, and on cold days a piece of flannel may be thrown over the eggs whilst the hen is off the nest.

Any dry sheltered place will do for the chickens, provided they have a fair share of liberty and are not put upon a wooden or stone floor. A clay floor lightly covered with ashes or sand is best; but if the floor be of wood or stone it may be made perfectly safe by covering it with an inch or two of dry earth, sand, or ashes. Special attention must be given to cleanliness, and any tendency to clog upon the chickens' feet is an indication that the earth requires to be turned over or renewed. While the chickens should be carefully saved from exposure to extreme cold any coddling must be avoided. We once had a servant who allowed the chickens to bask before the kitchen fire in cold weather, and we lost more from that cause than any other. A few days of such luxury rendered them unfit to meet the least exposure, and they speedily succumbed to colds and similar complaints.

The feeding must be generous, and a meal or two by candle-light at night or in the early morning is almost a necessity. A little meat must be supplied, and green food should not be forgotten.

For laying stock, it will be time enough to commence setting towards the end of January. Pullets hatched too early begin to lay in August, and moult along with the old stock.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at the Crystal Palace Hotel on Monday, 14th November, at 4.30 P.M. There were present the Hon. and Rev. F. G. Dutton (in the chair), the Hon. and Rev. A. Baillie-Hamilton, and Messrs. T. W. Anns, R. A. Boissier, T. C. Burnell, A. Comyns, O. E. Cresswell, H. R. Dugmore, R. E. Horsfall, S. Lucas, L. C. C. R. Norris, and G. Vigers.

ELECTION OF MEMBERS.—The following new members were elected—Samuel J. Adams, Doveridge, Derby; F. G. Milner, Hon. Sec. Leek Show; G. C. Livett, Cambridge; William Samuel Owers, Nightingale Villa, Mildenhall, Suffolk; Mrs. F. A. Puget, The Grove, Totteridge, Herts; and J. G. Pearson, Westbury House, Market Drayton, Salop. The following new Associate was elected—R. B. Astley, Tott's Nest, Ashstead, Epsom.

RAMSGATE SHOW.—The Secretary reported that, in accordance with the recommendation of the Committee, Mr. Boissier had applied to the Secretaries of the Ramsgate Show to refund to him the amount of return carriage paid by him to the South-Eastern Railway Company, and that he had thereupon obtained payment of his claim.

STANDARD OF EXCELLENCE.—The Standard Sub-Committee submitted the following report—

REPORT OF SUB-COMMITTEE.

Since our last report we have, as directed by you, issued blank forms of Standard to a number of leading fanciers of each variety. Considerable delay has been caused by the great number of forms necessary, and the impracticability of having them printed owing to differences in the forms applicable to the several varieties. Further delay has arisen from the difficulty in getting the forms returned filled up.

We have commenced the task of framing a draft Standard upon the basis of the replies received, and herewith present the result of our labours with respect to both varieties of Brahmas. We have also partly framed the draft Standard of Cochins.

We have had four lengthy meetings within the past fortnight, and, judging from the progress which we have already made and the labour involved, we do not consider that we should be justified in continuing the task as we are at present constituted.

Owing to the difficulty experienced in holding such frequent meetings as would be necessary to the speedy completion of the draft Standard, we think it will be necessary that some greater distribution of labour should be effected.

We therefore propose that a great increase in the number of the Sub-Committee be made, and that the work of comparing the forms filled in by the various fanciers be distributed amongst the members of the Sub-Committee enlarged as suggested; and that subsequently meetings of such Sub-Committee be held for the purpose of revising and approving the work of its individual members.

By the adoption of this method we hope that the preparation of the draft Standard may be greatly facilitated, and that the complete work may be in the hands of fanciers within the ensuing year.

As stated in our former report, we recommend that the general annual meeting be called upon to decide by whom the Standard shall be finally settled before publication.

The report was adopted, and it was resolved "That the entire Committee do form a Sub-Committee for the purpose of framing the draft Standard."

CLUB SHOW.—The final arrangements as to the schedule, &c., of the Club Show at Cambridge, and the nomination of the Judges, were under the consideration and were agreed upon.

ANNUAL REPORT.—The annual report was revised and approved by the Committee, and directions for its publication given.

SHOWS UNDER CLUB RULES.—The Secretary reported that Dove Valley (late Mayfield) and Southport Shows are to be held under Club rules, and subscriptions were granted to each of these Shows.—ALEX. COMYNS, *Hon. Sec. Poultry Club*, 47, Chancery Lane.—Nov. 15th.

THE ANNUAL REPORT OF THE POULTRY CLUB.

LADIES AND GENTLEMEN,—We have, as your Committee, thought it desirable that the annual report of the proceedings of the Club be presented to you at the General Annual Meeting. We, therefore, now lay before you a brief account of what has been done since our previous report, issued in October, 1880.

It will be in your recollection that at the last General Meeting a number of resolutions intended for the guidance of your Committee were passed.

We have endeavoured to carry those resolutions into effect, and we refer to several of them at length in a later part of this report.

The increase in the number of your Committee has to some extent obviated the difficulty formerly experienced in getting together a sufficiently large number of Committeemen to form a fairly representative meeting.

Your Committee has met ten times since the last Annual Meeting of the Club, and numerous meetings of sub-committees appointed to consider various matters have also been held.

Some twenty new members and as many associates have been added to the Club during the year, and it now numbers 110 members and 80 associates.

Twelve shows have been held, or are announced as intended to be held, this season under Club rules. Amongst these are Wolverhampton, Cambridge, Belfast, and Southport.

In order to mark their appreciation of the benefits to exhibitors arising from holding shows under Club rules, your Committee have granted subscriptions in aid of such shows where application has been made.

In compliance with your directions your Committee have issued a circular to all fanciers whose names appeared in the "Fanciers' Directory" for 1880. This circular directed attention to the objects of the Club, and cannot have failed to increase the influence of the Club by extending the knowledge of its rules and aims.

As further directed by you a circular was sent to the Secretaries of the various leading railway companies in the United Kingdom, calling their attention to the treatment of exhibition birds on transit to and from shows. We are happy to have to inform you that, in compliance with a suggestion contained in the circular, many of the principal companies have issued to their employés a notice directing that special care be taken in the handling of exhibition poultry, and that no delay be allowed in the forwarding of them.

Your Committee will feel obliged by your communicating to the Secretary particulars of any cases of rough handling which may come under your notice.

The circular sent out by your direction to secretaries of shows has led to several alterations in the dates of exhibitions being made, and some clashing of shows being thus avoided.

The preparation of a Standard of Excellence has been commenced, and a Sub-Committee appointed. The Sub-Committee have presented two reports to your Committee, which they have adopted, and have referred the matter back to the Sub-Committee. The first report has been published, and need not here be set out in detail. The Sub-Committee have, in accordance with the plan suggested in their first report, issued blank forms of Standard to a number of leading fanciers of each variety. Some delay has been caused by the great number of forms necessary, and the impracticability of having them printed owing to differences in the forms applicable to the several varieties. Further delay has arisen from the difficulty experienced in getting the forms returned filled up. The Standard Sub-Committee have, however, now commenced the somewhat arduous task of compiling a draft Standard upon the basis of the replies received. Their second report relates to the preparation of a draft Standard. Some proposals as to this matter will probably be submitted to you, and it will be for you to decide how the Standard shall be finally settled.

As some misapprehension has arisen as to the object of framing a Standard, your Committee think it desirable to state that they do not recommend or suggest the application of the Standard in an arbitrary way to the actual work of judging, but merely propose that it should be used as a check upon inconsistencies in judging. To be of value it should represent the views of the majority of fanciers of each breed, and your Committee have therefore endeavoured to obtain the aid of leading fanciers as well outside the Club as within it. The number of those to whom the forms have been issued has necessarily been limited; but as it is intended that the Standard before being finally settled shall be submitted to public criticism, it is hoped that all who are interested will assist by giving their views upon the draft Standard.

Several disputes between members and others have been adjusted upon the intervention of the Club.

Several claims by members against shows and individuals have also been settled upon the intervention of the Club.

In some cases of defaulting shows your Committee have guaranteed the expenses of legal proceedings to recover the amount claimed. In regard to such matters the Club has no power to initiate proceedings itself, and can only act by giving publicity to the cases of default, and thus preventing a repetition of them.

Your Committee regret to have to inform you, that in one case brought before them they have thought it necessary to disqualify a well-known exhibitor from competing at shows held under Club rules.

The legal opinions taken by your Committee as to owners bidding for or buying in their exhibits in open and selling classes have been so recently made public, that a lengthy reference to them appears unnecessary. It has been suggested that a test case should be tried at the cost of the Club, with the view of getting a legal decision as to the question incidentally raised as to the right of exhibitors to withdraw their exhibits from sale. Your Committee do not think this point of such importance as to warrant a heavy expenditure of the Club funds, and do not recommend the adoption of the course suggested.

An opportunity having presented itself of purchasing a small private collection of books treating of poultry, your Committee have so far carried out your recommendation as to the formation of a Club library as to acquire this collection for the Club. They have not yet framed any rules as to the management of the library, which is, indeed, hardly of sufficient dimensions to be of much practical importance.

Acting on your recommendation your Committee have decided to hold a Club Show. A favourable opportunity presented itself through the courtesy of the Committee of the Cambridge Ornithological Society, and arrangements have been made with that body that the Club Show of poultry be held at Cambridge in conjunction with the Show of Pigeons and Rabbits of the local Society on the 4th and 5th of January next. The preliminary arrangements have been entrusted to a Sub-Committee acting under the direction of your Committee. The schedule is in the printer's hands, and will shortly be issued. To avoid any misapprehension it may be as well to state that the entire administrative management of the Show will be in the hands of the local Society, whose Secretary will act as Secretary of the Show.

The annual balance sheet for 1880 has already been published. Your Committee need not therefore now further refer to the financial position of the Club.—F. G. DUTTON, *President*; ALEX. COMYNS, *Hon. Sec.*—Nov. 14th, 1881.

THE CRYSTAL PALACE SHOW.

THIS Show, the great event in the year for poultry and Pigeon fanciers, commenced on Monday and closes to-night. It reached larger dimensions than ever, the exhibits numbering no less than 5021, of which 2851 were poultry and 2170 Pigeons. These figures are a conclusive answer to those who allege that general interest in such matters is declining. The arrangements were as usual admirable; but the difficulty of having so large a show competently judged is more clearly exemplified than ever. Still, we think that something more might have been done by the Committee to avoid incurring the dissatisfaction of exhibitors. It is well known that one or two of the Judges who officiated as to the leading varieties have been on previous occasions found wanting. The Dorkings were for the first time judged by Mr. Raines, and loud were the complaints amongst exhibitors as to the system, or rather want of system, on which the awards were made. Dark Brahmas were once more taken by Mr. Teebay; and once more, especially as to the pullet class, were the awards severely criticised on all hands. As an instance of the high prices which still prevail for Dark Brahmas, it may be mentioned that the winning Dark cock (Sir H. Thompson's) was a short time since purchased by his present owner for sixty guineas. The Light Brahma classes were judged by Mr. Lucas, who here made his *début*, and, as we anticipated, gave almost general satisfaction. In Partridge Cochin hens and pullets Mr. Dixon's awards were even more severely criticised than those in the other classes to which we have referred. Here indeed there is great need of some fixed standard being arrived at. Mr. Smith's decisions in the Game classes were, as usual, well received; and Mr. Burnell, who had the somewhat arduous task of adjudicating upon the French, Leghorn, Plymouth Rock, Andalusian, Minorca, Langshan, Sultan, and table-fowl classes, was, we thought, generally happy in his selections.

We may say that we had on the Saturday evening an opportunity of seeing the arrangements for receiving and penning the exhibits, and that the care and method with which the vast mass of birds were dealt with was most praiseworthy.

OUR LETTER BOX.

Cutting Fowls' Wings (T).—You can prevent your birds from flying by cutting what are known as the flight feathers of one wing. The flight feathers are those which when the wing is closed are completely covered by the secondary wing feathers, which alone are visible. If you leave the outside flight feather untouched the appearance of the bird will be entirely unimpaired. If, however, you want the birds for exhibition, this cutting of the wing might be regarded as a disqualification in some breeds. There is, we believe, a wing-lock sold by Miss May Arnold intended for preventing exhibition birds from flying. You might, perhaps, try this.

Rape Cake v. Wireworms (F. H. H.).—It is only rape cake, not oil cake, which is said to destroy wireworms, and it is further said that they fill themselves to repletion by feeding thereon and are thus killed. If it does destroy them the rape cake should be drilled with roots or corn at the rate of 5 cwt. per acre, broken into pieces about the size of horse beans or peas. We, however, do not place much reliance on the destruction of wireworm by their feeding on any kind of cake. Our experience in extirpating them is not by their destruction. We managed a farm for thirteen years on the four-course system of cropping—viz., Wheat, roots, Lent corn, and Clover. During this period the wireworms increased greatly, and made it very difficult to obtain a plant of roots or corn in consequence of their depredations. We then commenced Potato culture, and after one course of these we seldom saw a wireworm on the farm, for we found that they ate their way into holes in the Potato tubers, and secreted themselves, and were sent away with the tubers at digging time.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881. November.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun.	6	30.140	54.1	53.5	N.	47.4	58.7	53.2	92.6	51.0	—	
Mon.	7	30.215	55.5	49.6	S.E.	47.3	51.6	43.3	68.3	25.6	—	
Tues.	8	30.210	52.6	52.3	N.E.	47.7	54.3	43.8	55.4	47.7	—	
Wed.	9	30.115	45.1	41.9	N.E.	48.3	52.4	44.3	67.7	41.4	—	
Thurs.	10	30.043	56.0	54.4	S.W.	47.6	59.6	41.4	71.4	36.3	—	
Friday	11	30.252	54.4	52.5	W.	48.4	58.4	49.6	66.2	43.6	0.086	
Satur.	12	30.129	53.7	52.3	W.	49.3	59.3	51.8	95.2	47.7	—	
		30.158	53.1	51.4		48.0	56.9	47.5	73.8	43.2	0.086	

REMARKS.

6th.—Dull and damp in early morning; bright, warm, very fine day; moonlight.
7th.—Hazy, damp, calm, and mild; little sunshine in forenoon. [night.
8th.—Hazy and generally overcast.
9th.—Misty early; fine day; sunshine in afternoon.
10th.—Damp morning; fine, mild, pleasant day. [9.15 P.M.
11th.—Fine and mild; damp overcast evening; wind at night. Lightning at
12th.—Fine, bright, and mild.

A very warm week, especially at night. The average minimum temperature for this week is within 1½° of the average maximum of the previous week.—G. J. SYMONS.



24th	TH	Birmingham Chrysanthemum Show, second day.
25th	F	Wellingborough Chrysanthemum Show. Two days.
26th	S	Birmingham Cattle and Poultry Show. Five days.
27th	SUN	1ST SUNDAY IN ADVENT.
28th	M	
29th	TU	
30th	W	Liverpool Chrysanthemum Show.

THE CHRYSANTHEMUM.

It is only during the present century that the Chrysanthemum has commanded marked attention, and so popular has it become that numerous societies have been established for the improvement of the flower that imparts cheerfulness to the departing autumn. In 1808 only ten varieties were known, in the next nineteen years they had increased by thirty, making a total of forty sorts in cultivation, while thirty years after it has been stated that one collection alone contained 750 varieties. It may be roughly estimated that the Chinese forms of the Chrysanthemum have been grown generally in gardens in England about fifty years, while the Japanese section has just attained its majority from the date of the first introductions by Mr. Fortune in 1860. Although many of the very old sorts have almost or quite gone out of cultivation, or at least are widely dispersed, still a large number of the incurved kinds now to be found on exhibition tables are many years old, for we are almost at a standstill in raising new varieties of these from seed. Sports we frequently have, some kinds producing them freely, notably the "Queens," which have furnished us with several beautiful variations; the grand trio of "the Rundles," Jardin des Plantes, Venus, and others; but in raising new and improved incurved varieties from seed we are doing nothing.

From the French we have received numerous forms of the Japanese type, many of them valuable additions. Ten years ago the Japanese section was known only to a comparatively small circle of cultivators; but now the long lines of boxes, containing hundreds of large flowers of peculiar, quaint, and grotesque forms, and of great diversity in colour, ranging from pure white to the most brilliant hues, are a striking feature at all the leading shows. Indeed, so rapidly have the Japanese forms increased of late, that it is easier now to stage a collection of twenty-four distinct varieties of this section than it is to arrange the same number of good incurved varieties.

It is not surprising in such a number of varieties so strikingly dissimilar, and some of them showing clearly marked characters, that some sort of classification became necessary. This want, indeed, was recognised years ago. In 1833 A. H. Haworth, Esq., F.L.S., formed an arrangement of the then existing forty-eight sorts, dividing them into sections. This classification was published in Loudon's "Gardener's Magazine" and the "Floricultural Cabinet" for that year, as follows:—Section I., Ranunculus-flowered, in which there are thirteen varieties named—viz., Yellow Indian, White Indian, Warratah Yellow, Spanish Brown, Blush Ranunculus-flowered, Small Deep Yellow,

Small Pale Yellow, Small Flat Yellow, Buff or Copper, Rose or Pink, Pale Pink, Expanded Light Purple, and Quilled Light Purple. Section II., Incurving Ranunculus-flowered.—Under this heading there are six described as Incurving Lilae, Curled Blush, Quilled Pink, Large Quilled Orange, Gold-bordered Red, and the Superb White. Section III., China Aster-flowered, "often showing a disc, and then much resembling China Asters."—We have here six more described as Sulphur Yellow, Two-coloured red, Early Crimson, Clustered Pink, Early Blush, and Paper White. Section IV., Marigold-flowered, with well-formed double flowers, resembling double Cape Marigolds in shape and size, and known by the names of Golden Bronze-back, Superb Clustered Yellow, Golden Lotus-flowered, Changeable Pale Buff, Starry Changeable Purple, Late Purple, and Brown Purple. "Section V., Tassel-flowered, being very tall plants with very large double and more or less conspicuously drooping flowers, whose petals are usually elongated and quilled, and often greatly resemble the form of a tassel." This appears to have been a very important section in those days, and under it are described eleven varieties. As the name "tasselled" has been applied by some writers during the past two or three years to different forms of Japanese, it may be well to cite from the author of that distinctive term:—"The Tassel-flamed Yellow.—The magnificent flowers of this tall plant appear rather late, and often measure above 5 inches in expansion, and make, perhaps, if not a more neat, at least a more showy appearance than any other of the group, being double and composed of innumerable chiefly quilled incurving petals, hanging more or less downwards, and when at their best resembling a flame-coloured tassel." Others are Tasselled Salmon and Yellow, Quilled Yellow, Late Quilled Yellow, Large Lilae, Tasselled Lilac, Tasselled Purple, Changeable Tasselled White, Narrow Quilled White, and Great Tasselled White. The remaining five are described under Section VI. as Half-double Tassel-flowered, with only half-double flowers and narrow elongated quilled petals, often drooping, and somewhat resembling a tassel. The five are Half-double Quilled White, Pink, Buff, Orange, and Pale Orange. Thus Mr. Haworth in dealing with forty-eight varieties divided them into six different sections, and it is a question if his arrangement was not more satisfactory than that of the present day with the legion of varieties now in cultivation. In forming Sections V. and VI. we might fancy the author was dealing with Japanese varieties, and it will be noticed that he divides the tasselled flowers into two sections. Not a few cultivators think that the time has arrived when the tasselled flowers of our day—the Japanese, should also be grouped in two sections; and as the classification of Chrysanthemums is still a matter of controversy, I will attempt an arrangement which, even if it does not form the basis of a settlement, may possibly lead to a recognised mode of grouping if those readers who are interested in the subject will co-operate to the end in view.

SECTION I.—Flowers in which the florets naturally incurve, in many instances to form a perfect sphere, the type being represented by such flowers as Mrs. George Rundle and Empress of India, which are merely cited as examples; others of this section will be subsequently named.

SECTION II.—Flowers the florets of which naturally reflex or turn backwards. This is a very important section, and the flowers are scarcely met with at exhibitions except where classes are specially provided for them; they are, nevertheless,

very pretty and very desirable to grow for home decoration. Dr. Sharp, King of Crimson, Cloth of Gold, Chevalier Domage, Felicity, and Mrs. Forsyth are well-known examples. But there are other flowers which it is very difficult to decide upon, such, for instance, as Julia Lagravère, President, Trevenna, &c. They are almost too small to be included, yet are too large to be admitted amongst the Pompons. As there is a danger in making too many sub-divisions, I feel that all those which are frequently termed hybrids (of which the varieties just named are good examples) must for the present be included in Section II.; in fact, I have frequently seen Julia Lagravère exhibited in a stand of twelve reflexed, and when disbudding has been practised and a large bloom is produced and placed in the front row it is generally one of the most telling in the stand on account of its richness of colour.

SECTION III.—Japanese, or, as expressed by some, Tasselled varieties. This is now a most important section, and one that may be well sub-divided, as from the rapid increase in the varieties and the introduction of partially incurved and reflexed forms it is almost impossible to meet with a collection of the pure old-fashioned Japanese form as introduced by Mr. Fortune and afterwards increased by the late Mr. Salter. Size and substance of flower in many cases have taken precedence of form. We have all shades of colour and all shapes. For instance, the exquisite pure white Elaine is a very bad type of a Japanese; its petals, or more correctly speaking florets, quite reflex, and yet who could dispense with it from their collection? Then there is Peter the Great, a most pleasing yellow with long narrow flat florets, which naturally incurve and form quite a ball. Others have florets that curl and twist in divers shapes, as in the Dragon class—Chang, James Salter, Hero of Magdala, and M. Crousse; while with M. Ardene, Jane Salter, Sarnia, Alba plena, and several others, their florets are straight and almost rigid like the bristles of a broom. In Bouquet Fait, Fulgore, Meg Merrilees, Baronne de Prailly, &c., the florets droop and fall beneath the calyx of the flower in long hair-like curls. I cannot think that the varieties described as tasselled by Mr. Haworth will apply correctly to our present forms of Japanese, with the exception of perhaps one, and that is Soleil Levant. Considering the well-defined characters that exist in the Japanese flowers now in such great variety, the question arises whether the true tasselled varieties should not be separated from those with flat florets. There are sufficient of both to form good classes, and the subject might be considered by committees of Chrysanthemum societies. Having made the suggestion I pass on to the other types of the flower under notice.

SECTION IV.—Large Anemone-flowered varieties. These are very striking, and so distinct to the foregoing to almost indicate another species. The majority of them are composed of an outer fringe of flat florets, while the centre is formed of short quills, which in a well-formed flower rise up in the form of a hemispherical disc. Gluck, Prince of Anemones, and Lady Margaret may be taken as fair examples of this section. The varieties are by no means so numerous as the other two sections, still there is no difficulty in being able to exhibit twelve distinct kinds.

SECTION V.—Small Anemone-flowered or Anemone Pompons. These, while possessing the same small foliage and dwarf habit of the Pompon or Liliputian reflex flowers, have an outer ring of flat florets, with a raised central disc exactly after the manner of the larger-flowering Anemones in the foregoing section, but barely reaching a fourth of the size of these. The neatness and perfect form of each flower are very striking, and when set up on the exhibition table, three stems of each variety with their foliage raised from 4 to 6 inches from the boards, they are always admired; but they are seen to a great disadvantage when set up with single stems only, therefore framers of schedule of prizes would do well to stipulate for three stems cut to form a bunch.

SECTION VI.—Pompons. These are miniature flowers very double, each being a perfect half globe of reflexed florets. The varieties are very numerous. Mdle. Marthe, although one of the largest of the section, is a beautiful pure white and a model of the type; Bob and the varieties of Cedo Nulli are other good examples.

Mr. Douglas, in his useful work on florist flowers, forms a separate section of the early-flowering or summer-blooming varieties; but is this necessary? I think not. They are mostly good examples of the Pompon, and for an outdoor display are most valuable; but we are obtaining early-flowering varieties from the other sections, especially the Japanese, and before long we may have forms of Elaine and James Salter blooming early out of doors. Already Mr. Cannell describes Madame Desgrange under the head of Early-flowering as a white Japanese. Further details on varieties and their treatment must be postponed.—J. W. MOORMAN.

FRUIT TREES IN COTTAGE GARDENS.

In an article on this subject, at page 448 of the *Journal of Horticulture*, "A KITCHEN GARDENER" gives advice to the tenants of such gardens to plant fruit trees liberally, with a view to the profitable sale of such produce. Such advice is, no doubt, sound so far as the experience of the writer in question extends, but the advice is not equally good for all localities. It seems to me a duty to state something within my own knowledge of what may be said on the other side of the question, so that the *pros* and the *cons* may be fairly before those who would plant.

Can the fruit be sold after it is grown? In the neighbourhood from which I write so great has been the crop this season of Apples, Pears, and Plums, that they have been practically unsaleable. One poor man with a productive orchard of Apples and Pears adjoining his house, after trying hard to sell on better terms, was considered fortunate in disposing of the whole of his produce for 1s. 6d. a bushel all round. The Apples were not what are termed "cyder Apples," but comprised several good keeping sorts, Orange Pippins and White Nonpareils. Others have sold their Apples for 1s., and even 9d. a bushel. Such prices would barely cover the cost of gathering. A great quantity of cyder has been made from all sorts of Apples, not because it was wanted, but it seemed better to do this than to let the fruit decay. Some very fine ripe Victoria Plums sent for sale to a village shop realised about three farthings a pound.

I made several inquiries, partly with a view of assisting my poorer neighbours to dispose of their produce. Writing to the nearest market town (ten miles off), no reply was vouchsafed by a dealer to the question whether or not he would purchase fruit. Presumably he had already more than he could sell. On calculating the cost of hampers or casks for packing, with the carriage to the nearest station and the railway charges, it was clear that the expenses of transport would exceed the market value of the fruit.

Those cottagers who live so near to a good market town that they can themselves carry their fruit thither, may well plant fruit trees; but the results of so doing, in the case of the far larger number who live in villages more or less remote or scattered over the country, will certainly be doubtful. I can quite understand why the tenants of my own few cottages have more than once declined my offers to stock their gardens with young trees of good sorts. The objections were twofold—the trees would overshadow their Potato and Cabbage ground, and they probably could not sell their surplus fruit.

I would further suggest, whether it might not be possible to organise some plan by which dealers should send round carts or waggons in the fruit-gathering season from village to village, to purchase on the spot the carriageable kinds of fruit. The practicability of such a scheme could be determined by those who possess the necessary technical knowledge.

A word of caution to those who are about to plant. I have in previous years planted several hundreds of fruit trees. The selection of sorts has been made by myself. The great majority has come from Messrs. Rivers of Sawbridgeworth and Smith of Worcester, and in every instance the trees are true to name. The minority has been obtained from local and less famous fruit nurseries, and very many of these trees are not true to name. Thus Joséphine de Malines turns out to be Williams' Bon Chrétien, Red and White Ginetting both bear the unmistakable fruit of the Devonshire Quarrenden, and so of many others.

The result in such instances is much the same as it would be if you had ordered a case of port wine, and not opening it for a year or two after receiving it, had then found by some unaccountable muddle, your bottles contained porter and not port wine. The disappointment would not, perhaps, be so great in the latter case, because the matter could be more easily remedied, but your expressions of gratitude to both classes of purveyor would, no doubt, be emphatic.

I might have troubled the readers of the *Journal* with an account of the varieties of Apples, Pears, and Plums that have

been found most productive among the many that I have planted, had not the subject been treated recently in its pages by so many able pens.—A SURREY PHYSICIAN.

A CLUMP OF TREES.

FEW matters in forestry or landscape gardening require greater care, judgment, and forethought than planting and arranging an ornamental clump of trees. If well done, nothing affords greater satisfaction. Growing yearly in importance and beauty it is always a pleasant sight as a whole; and the gradual development of each tree, the manner in which each individual of the group tells upon the others in contrast or harmony of form, foliage, or colour, are all sources of interest, pleasure, and instruction. Badly done it is, on the other hand, a deplorable and vexatious sight. Crowded, sickly, or stunted growth; heavy masses of evergreen foliage unrelieved by deciduous growth, or a badly chosen confused mass of deciduous trees without a single Conifer or tree which retains its foliage in winter—these are some of the most conspicuous faults; but a still more common one is that of neglected clumps, planted with all due care and with well-assorted trees, but too thickly, as is so frequently the case. Their growth has become intermingled, drawn, and attenuated past all remedy, for, the mischief once done, no subsequent thinning and admission of light and air can possibly restore the wasted vigour.

In this, as in much else, we live to learn and to unlearn, the latter process being by no means easy. There are two distinct kinds of clumps that I have in mind—mixed clumps of various trees, and clumps of one kind only. Of the latter I can recall many admirable examples, not simply from the large size or symmetrical growth of the trees, but rather from the fine effect produced by each in its well-chosen position. Take for example a clump of *Cedrus Deodara* in a corner of a park—a formal right-angular corner—very conspicuous, having one of its lines defined by a row of fine old Beech trees, and the other by a belt of underwood and Oaks. The Cedars stand out singly upon the turf about 60 feet apart, and well away from the other trees, all of them deciduous; and although they have only been planted nine years a striking effect is already produced. One day, in another generation or two, when they become large trees, the clump will be quite worthy to rank with the beautiful Cedar lawn at Mount Edgumbe.

Of other clumps of one kind of tree I may mention a grove of magnificent old Beeches near a stream of water, some of them not more than 80 feet apart, others twice that distance; no other trees are near them, nor are any wanted at any season of the year, for the grand old trees are sufficient in themselves to rivet the attention. A bold clump of Silver Firs high up near the crest of a steep hillside, with a wood of Oak, Beech, wild Cherry, and various other deciduous trees below it, is singularly well situated as a background to a charming woodland scene, visible from the windows of a house standing upon an eminence on the other side of a valley. I have a particular regard for this clump, because I saved it from the hands of a destroyer some years ago—one of those dangerous improvers who only value a fine tree for the quantity of scantling to be cut from it.

Mixed clumps are justly much more cared for, but it is not so easy to plant them successfully. The nature of the soil must be our guide to selection, for it never answers to plant deeply rooting trees in a shallow soil. For a deep rich soil we may take varieties of Oak, Ash, Elm, Magnolia, and Plane, with the Tulip Tree, Poplar, Lime, Douglas Fir, Spruce, and many of the loftiest Conifers; while for shallow soil, Beech, Birch, Maple, Chestnut, *Crataegus*, Cherry, *Pyrus*, *Robinia*, Willow, and many Conifers answer best. Particular care should be given to planting the permanent occupants of a clump far enough apart to allow a full and symmetrical growth. It is not easy to lay down rules for distances, but it may be stated that trees with spreading heads should be from 40 to 100 feet apart, according to their known dimensions and the nature of the soil.

Bear in mind the effect of summer foliage, and also the beauty of autumnal tints. The Cherry, Birch, Beech, Maples, Liquidamber, Tulip Tree, Scarlet Oak, Purple Beech, Whitebeam, and some of the Willows, are all so picturesque in autumn as to materially contribute to the beauty of a clump then. One of the most beautiful trees for the margin of a clump is *Acer polymorphum atropurpureum*, but it does not seem likely to attain to any considerable altitude in this country, the growth being slender and somewhat spreading. Mountain Ash, too, is good for the margin, both for its sweet-scented flowers and scarlet berries. It was very beautiful this year.

Larch may be planted among the trees as nurses and gradually cut away, or other trees may be planted with a view to subsequent removal, thus converting the clump into a nursery for the first

few years of its existence. Whatever method of treatment be resolved upon, frequent attention must be given to the trees for several years, and they will well repay all our care. Let me impress this strongly upon the reader. Too often trees are left to take their chance after the planting, with the common result of debility, disease, or death.—EDWARD LUCKHURST.

CROWEA SALIGNA MAJOR.

WHEREVER New Holland plants are grown in numbers for the greenhouse the Croweas almost invariably receive some attention, for amongst such as flower late in summer and early in autumn these are very attractive. Moreover, they are as easily grown as



Fig. 75.—*Crowea saligna major*.

any other plants from the same district, and much more easily than many. One of the finest varieties is *C. saligna major*, of which a spray is represented in fig. 75. It is a form of the species *C. saligna*, which is a very useful, free-flowering, and strong-growing plant, but the individual flowers are not so large as in this variety, which is appropriately termed major. Another form, also with large flowers, is named *striata*; but the colour is very much lighter, being a pale delicate pink, while in *C. saligna major* it is a rich deep rose.

The spray from which the engraving was prepared was taken

from an extremely well-grown specimen in one of the houses at The Firs, Lawrie Park, Sydenham.

POTATOES OLD AND NEW.

I REMEMBER many years ago, when visiting the Warden's garden at Winchester College with old Mr. Weaver—as good a man as he was a gardener—that I asked him what he considered the best Potatoes. His reply was, "With the exception of a few Ashleafs for very early use I grow only one kind, and that is the Dalmahoy; it comes in as a second early, and it lasts throughout the season." Twenty years have elapsed since then; a Potato mania has set in; Potatoes of all kinds and from all quarters have been introduced. America, its native home, has sent us a number of coarse and worthless varieties; seedlings have been raised; selected stools have been brought forward; and yet in 1881 I am coming to the opinion Mr. Weaver expressed in 1861, and am inclined to believe that for all purposes after the very early sorts no Potato can surpass the Dalmahoy. What, then, it may be asked, is the use of the Grand International Potato Show? I say, None whatever to the general public. Hundreds of worthless varieties are brought forward. They are, perhaps, good-looking, well washed, and daintily set up, and some are even certificated; yet, notwithstanding, nothing has been done to give us reliable information as to good Potatoes, how to keep them from disease, &c.

Of course there is the question, What is a good Potato? I have a neighbour who cannot endure a floury Potato; a close waxy one is his idea of goodness. I have a young friend who delights in "pig's Potatoes"—i.e., small close little things which we think only fit for the pigs, but in the ordinary mortals the idea of a good Potato is a medium-sized floury Potato with a good flavour; besides this, for a garden it ought to be of moderate-sized haulm and a fair cropper. Now, if this is a correct view there are many that will fail to fulfil the conditions. One of the American Potatoes has found much favour with cottagers—Early Rose, but I have not yet tasted one that was eatable. It is a good cropper, and, ripening early, can be lifted before the disease attacks it; and as cottagers, as a rule, do not much care about quality in Potatoes, it is likely to be popular; but when taken to market its inferiority is soon seen. It will not fetch within a third as much as Regents or Victorias. Take, again, another American—Snowflake, a pretty-looking Potato, a fine cropper and floury; but it lacks flavour. It is like flour in the mouth, and has as little flavour as it has, and therefore, although at one time I was inclined to grow it, I have given it up. Then there is Magnum Bonum, undoubtedly a wonderful cropper and of fair quality, but its haulm is far too coarse for a garden; but where Potatoes are grown for market it, and probably still more Reading Abbey, will be a very useful variety, but neither the one or the other are garden varieties. Scotch Champion is a very valuable sort to some people if the stories we hear of the quantity sent to Ireland be correct; and for Paddy, who has no objection to a "taty" with a stone in the heart of it, it seems to have answered well. I have been unfortunate, for I have never tasted one that was worth anything, coarse and unpleasant to the taste. Lapstone is, I believe, the very best of all Potatoes, and if imitation is the most flattering, it has been flattered enough. Heaps of tubers have been and are shown as Lapstones which have no relation whatever to it; but when true its flavour is unsurpassed, indeed I think unequalled, by any Potato in existence; but it is too delicate, and is gradually dying out. The only kidney variety that I know that at all approaches it is one called Lady Paget, and much grown in the neighbourhood of Sherborne, and of which Mr. Pragnell, the able gardener at Sherborne Castle, might be able to tell something. The Regent class is, perhaps, after all the most valuable of the various classes of Potatoes. The old Scotch Regent, the Kent Regent, the Dunbar Regent, Schoolmaster, and Dalmahoy are all excellent Potatoes. The Regent is, however, very much subject to be attacked by disease; but the Dalmahoy, which is somewhat earlier, and can therefore be lifted in good time, is not with me so subject to it, and gives a fair crop of good-sized Potatoes.

I believe nothing is to be gained by having extra large Potatoes. A medium-sized one is, as a rule, far better eating. And is not the same true of all vegetables? Does not great size produce coarseness? Is not a medium-sized head of Celery better than those enormous heads which some delight to produce? Is a Broccoli that fills a soup plate as good as one about the size of a cricket ball? or a Cucumber $2\frac{1}{2}$ feet long equal to one of 12 inches? And so I am always content with medium-sized Potatoes.

There is another point on which I have altered my opinion. I used to think that it was a barbarous custom to cook Potatoes

without their skins; but I find that much depends on the cook. They should be always steamed, not boiled; and when carefully done they are better, I do believe, when peeled first. One gets rid of that earthy taste which often spoils a Potato; and, moreover, the cook is able to detect any disease and reject the tuber, whereas when boiled in their skins enough may be left to injure the Potato, although it may not be visible to an inexperienced eye.

I have, I am perfectly aware, advanced some opinions in this short paper which are heretical and may be displeasing to many; but at any rate they are honest, not formed upon any insufficient grounds. I have grown during the last twenty years nearly every Potato that has been brought out. I had no prejudice against any one sort, or special favouritism for any other. I may be quite wrong in my estimate of what a Potato ought to be, but there are matters incident to every subject on which one may write, and if it induces anyone to show that I am wrong no one will be more ready to admit it than—AN OLD "TATER."

GREEN DRACÆNAS.

As market plants these are often seen, but in large and in small establishments they seem to have been neglected since the coloured kinds have become so plentiful. We do not wish to say one word against the latter, but to point out that as table plants, surrounded by pure white cloth, flashing crystal, coloured decanters and glasses, to say nothing of fruits and flowers, they are very much less effective than the green varieties. Coloured or variegated plants, which are attractive enough among other plants, are seldom so good for such work as those with green foliage. We know here our coloured Dracænas find small sale compared with the green kinds. Doubtless this is one reason for the popularity of Palms.

There is one fact more to recommend green Dracænas—namely, that they are even easier to propagate and grow than coloured kinds, and that, while the coloured kinds need stove heat, the green kinds thrive in greenhouse temperature, a fact that those who possess only a greenhouse should note. They also endure indoor ill-usage better because they are hardier. *D. congesta* and *D. rubra* are two of the hardiest, and perhaps the best. The former is more elegant than the latter, the latter more substantial than the former; but both are handsome plants not easily surpassed for table decoration. Neither are new, as both are cheap.—A DECORATOR.

PEARS FOR WALLS.

"JOHN BULL" does not need to make any excuse for the paper in question, whether he be a gardener or not. It is only by stating our experiences and our convictions, and having them discussed, that we are ever likely to improve. What I wrote was to cause others to pause before committing themselves to a method of fruit-tree culture so winningly advocated by "JOHN BULL."

As for the boldness displayed by me in writing after Mr. Taylor and Mr. Warner, my paper was in the hands of the Editor before their papers appeared. Moreover, I did not and never have advocated the employment of Quince stocks in preference to Pear stocks. I know many places where Quince stocks have failed altogether, and others where they succeeded admirably. The question is not so much one of stocks but of tops, and I still think—indeed, I am convinced—that in the majority of instances large trees are much less profitable than are smaller ones. I have lifted the roots of large hopelessly barren trees out of the subsoil, and have thus restored such trees to something like fertility, and I have helped to train the branches and roots of smaller trees that were kept small because of the lifting, and even pruning, that was necessary to keep the roots among the healthy soil, and I cast my vote in favour of such trees. I do not advocate pigmies—that is one extreme, successful enough under certain circumstances; and the giants referred to are the other extreme, also successful under certain circumstances, but in a majority of instances not successful at all.

"JOHN BULL" says he has "never been so foolish as to imply that bad weather does not affect Pears on walls." Well, I have only his words for it, and the words he used were, that although climatological reasons made Peach houses necessary, the objection had no force as applied to Pears. He asks if I never heard of bad weather spoiling the Wheat and Potato crop, and, if so, if we would discontinue the culture of these crops. I do not see the analogy of the cases. We did not advocate discontinuing Pear-growing. Assuming that there are good, better, and best ways of growing them, my idea is that we should choose the best. But I will not assume, as "J. B.'s" words entitle me to do, that he is

so remote from civilisation as never to have heard of farmers abandoning the cultivation of Wheat and Potatoes, and substituting something else that promised better returns, just as we would have "J. B." not to be so particular about the exact length of his trees' branches, but to "go in" for abundant and early fruitfulness.

My advice "to secure early and abundant fruitfulness and not to bother with the affairs of our grandchildren," affords your correspondent a chance of saying that I hold the "jerry builder's creed." Again, I fail to see the analogy. The jerry builder's work not only does not promise shelter for future generations but threatens to destroy, and is a constant source of annoyance to the present. Pear trees trained on the "short-cut to fruit"-principle cannot be called dangerous, while to the planter it is "J. B.'s" trees that are likely to annoy. To liken either system to the jerry builder's work is exceedingly far-fetched; but if it is allowed at all, surely it applies not to the training we advocate, but to that advocated by "JOHN BULL."

I did not say that Pear trees would not grow without having borders made for them. But I said, and say still, that first-rate results need not be looked for from trees trained as advocated without good borders. That they will grow we are all aware, but we want something more than growth—we want fruit; and not only fruit but good fruit, and we have yet to learn that good Pears can be produced all over these islands from trees the roots of which are allowed to run into cold clay or cankered gravel. Here and there, especially in favoured spots, this may do, but few are so favoured.

"JOHN BULL" says that the question is not "walls *versus* orchard houses." That is quite true, but he asked the possessors of *new* walls to "seriously consider" how to fill them. We asked such to "seriously consider" whether it would be wise to build at all, but rather to "consider" whether orchard houses would not be more profitable. Whether the erection of orchard houses would "cause the removal" of existing walls is beside the question, as it is not a question of removal but erection when new walls are concerned, and to new walls alone we referred.

I put what I thought a pertinent question when I asked why the gentlemen and gardeners whose memories were long enough to remember the "splendid and splendidly" trained trees were grubbed up. I am asked now, "Who said they were grubbed up?" I inferred that what was merely a memory must be gone; and that if only gardeners and gentlemen of a certain age only could remember them, that they must have been grubbed out.

I am sorry that some things your correspondent asks me do is not just now in my power. I am far from my home where the copies containing "JOHN BULL'S" article and my own are, and so cannot refer to them. There are many other things I would have liked to reply to, but illness makes me stop here. The doctor enjoins change and rest; these I can only have for a very short period, and I feel neither willing nor able to grapple the subject. My purpose will be served if attention shall be aroused on an interesting subject.

One thing more and then I close. I am asked to furnish proofs that such training as I advocate is superior to his. If he wishes to have samples submitted of trees and their produce, I can only say that most of my experience has been gained under others. Under masters I have worked both (or rather a variety of) systems, and to say that here this failed, and there that succeeded, would be invidious. Still the results—it matters not who secures them—must be the test whereby to judge of systems, and my experience is as I have tried to indicate; and I feel that for my part, had I a new plantation of Pear trees to plant against walls to-morrow, I could best secure satisfactory results by planting trees in good loam on Pear stocks and keeping the roots fibry near at home—near the surface, mulched when need be, fed when need be; and this means restricted top growth, because of restricted root growth; fine fruit because, the roots being near the surface, the sap would never be cold, and because of this feeding applied just where and just when required. This is just the threshold of the subject, but here necessity compels me to stop.
—A. H. H.

BRACHYCOME IBERIDIFOLIA.—This pretty annual is generally known as the Swan River Daisy. About the last week in June I sowed a few seeds of it in the open ground. In August, noticing that some of the plants which had plenty of room were dwarf and sturdy, I at once potted half a dozen of them, and they have not only pleased me for the last few weeks, but they have received favourable notice from several visitors. How long they will continue growing and flowering I cannot say. At present they show no indications of giving way; and although they are not so full of bloom as the plant represented in the figure on page 413, they are not to be despised at this season, the small blue Cineraria-like flowers and Asparagus-like

foliage both contributing to the attractiveness of the greenhouse.—W. W.

ROSES.

WITH every passing year there is to my mind a confirmation of the position that Roses succeed better on their own roots than on any stock. This is admitted of many Roses. I believe it to be true of all varieties. It is now commonly recommended that scions on the Manetti should be planted so deep that the bud will form roots. This, so far as concerns that stock, concedes the whole point. But it is true of the Briar and every other stock. The most delicate Roses are, with rare exceptions, more hardy than the Briar tribe. In nine-tenths of the deaths of standards the fatality is found in the stock and not in the scion. Plants budded on John Hopper, Edward Morren, and other robust-growing Roses do better than on the Briar, and even where a scion succumbs the stock will itself produce blooms. But for the difficulty of producing large quantities on their roots I think the budding mania would soon end.

Cuttings of all Roses strike readily. Most of them can thus be propagated in the open air. A few delicate varieties may need some protection; but that raises the question whether plants that cannot be propagated and do not thrive in the garden are worth cultivation. I think they are not. But rosarians have, like other people, wild fancies. To some Rose-growers there is pleasure in producing Roses under needless difficulties. These enthusiasts forget that the Rose is queen of the garden. A plant which will not thrive except under glass, or when wrapped in swaddling clothes, should be discarded in common with scentless varieties and those shy bloomers that reward a year's labour with a single flower. I am by degrees discarding all plants except those grown on their own roots. This is, it is true, the whim of an amateur. But I have been so vexed with stocks throwing up suckers, thus depriving the Rose plant of its nurture, and with the death of the stock while the Rose itself was healthy and vigorous, that I have resolved to do without Roses budded on any stock which is not itself a good Rose.

I have a great many of our best sorts growing with more vigour on their own roots than on any stock, and, so far as I have had the means of judging, Roses are more floriferous on their own roots than on Briar or Manetti stocks, and the blooms come of better form. My advice to everyone who grows a small number of Roses would be to have none except on their own roots. If they desire a standard, let it be on a good Rose tree. It is no deformity to have several varieties growing upon the same stem. Indeed in this way variety may be a great advantage. The stock may thus carry its crown of flowers from June to November by budding early and late varieties upon it. This is the only mode in which standards should be grown.

I dare say that some lovers of the Rose may be disposed to impeach me for treason. But I hope to live until it will be treason to disfigure our gardens with mop-sticks and mop-heads.
—W. SIMONS, *Gwainwarren, Merthyr Tydfil.*

VAPOURISERS.

I SHOULD like very much to see the question of vapourisers or spray-distributors discussed in your paper. Nothing would be more useful to a horticulturist than a really efficient instrument for such a purpose, but as yet I have found none. I have used for several years Maw's spray-distributor, which is sold for the diffusion of scent, and most useful I have found it for Roses in pots, Pelargoniums, &c., but for a vinery this is too small. I applied recently to the maker of the vapouriser which you described and figured in your paper, and he sent me one on trial. I found it, however (whether from my own fault or that of the instrument I cannot say), a total failure. It did not work well horizontally, and the moment the nozzle was raised so as to bear upon the leaves of a vinery its action ceased altogether.

Many years ago I saw in a horticultural paper the figure of an American instrument, which I thought might be very useful, but I do not know whether it could be obtained in this country. The vapouriser was hung with a swinging joint on the nozzle of a pair of bellows, so that whichever way the instrument was held the vessel containing the liquid retained its perpendicular position. By working the bellows the spray was distributed.

A really efficient vapouriser would, I should imagine, be most welcome, not only to English horticulturists but to Indian Tea-planters. The great enemy which they have to contend with is the red spider. Their method of cultivation is the following:—Supposing a shoot of the Tea plant to contain five leaves, they take two and the final bud and leave three, from the base of which

fresh shoots are developed. It is upon these old leaves that the red spider fixes, and a vapouriser that would dislodge or kill the red spider before fresh growth has begun would, without exaggeration, be worth thousands a year to the planters. Can none of our clever men invent such an instrument, cheap and simple in action? or is there one already in existence?—A LOVER OF HORTICULTURE.

SENECIO PULCHER.

SENECIO PULCHER, the Beautiful Groundsel, deserves its name, being beautiful either as a conservatory plant or in the open border if well grown. It is, however, rather difficult to manage. In better climates than mine it may be what it is called a hardy herbaceous perennial; but though the roots are not killed by frost, no plant has yet flowered with me which has been left in the open ground all winter. I find it best, therefore, to give it biennial treatment, the particulars of which I will describe. It produces fertile seed very sparingly in this country. A large quantity of seed which I saved last year gave me only two or three plants, and Mr. W. Thompson of Ipswich tells me that he has tried in vain to obtain good seed. In default of seed, plants must be raised from root-cuttings. In autumn after the plant has flowered it must be lifted and the soil shaken from the roots, a number of which will be found about the thickness of Wheat straw. The larger of these may be cut into lengths of $1\frac{1}{2}$ inch, and inserted upright in a pan of sandy loam, so that their tops are even with the surface of the soil. If these are kept through the winter in a greenhouse or frame having an average temperature of about 50° , a large proportion of them will be found to be growing. When the leaves are as large as a sixpence the plants may be potted singly, giving them large pots to encourage the development of roots, which in this plant are large and many in proportion to the leaves. If by liberal treatment any of them have made leaves 6 inches long by the end of May they may be planted out or potted on for the conservatory, and induced to flower the first autumn, but in most instances the growth is provokingly slow.

I keep them in the open air in pots through summer, and, after a second winter in a cold frame, plant them out in May. The soil should be rich, moist, well-drained loam, and the situation sheltered from hot sun. Some of the best of these two-year-old plants have this year made leaves 15 inches long, and five or six flowerstalks, each producing a dozen flowers. If left out in the winter in cold damp soil, the cold or the wet, or both together, cause the crown to rot, and the roots are found detached from it. These will form shoots late in spring, but will not be nearly such strong plants as when treated as I have advised. After the larger roots have been cut from the plants which have flowered the crown may be potted, either whole or divided; but as far as my experience goes it seldom makes a flowering plant again for two years.—C. WOLLEY DOD.

THE CHAMPION POTATO.

THIS excellent variety has been largely cultivated during the last few years. Nearly all new vegetables and flowers have the best of situations, the best of soil, and the very best of care bestowed upon them at the first time of sowing or planting, yet when they prove good less care is taken with them, and they are planted in inferior soils and positions. Last year in this district the Champion Potato was grown extensively, the season was very dry, and the yield was enormous and of very good quality. Last season they were planted as widely as the year before, but in many instances in worse soil, the result being a complete failure. The variety does not like wet land. For instance, in this district some were planted in wet mossy land, while others from the same seed bags were planted in drier sandy soil. Those planted in the wet mossy land were scarcely worth forking up, while those in the sandy land were a very good and sound crop. Magnum Bonum thrives fairly in wet land, and is a better keeper than the Champion. There is an old variety called the Skerry Blue very largely grown in some of the midland counties. It is not a very handsome Potato nor yet large, but it is quite as good in quality as the Champion if well cultivated. All intending planters of the Champion would do well to exercise a little forethought as to the nature of the soils, if they desire in return a good crop and good quality.—A NORTHERNER.

CURIOUS PEAR.—By accident at the picking of the dozen or eighteen Pears that followed some late blooms, this fruit in question was hidden and unnoticed till the foliage began falling. High up on the tree it had a somewhat quaint appearance, but on close

inspection it seemed to me an effort to make a Pear out of another Pear, like the Rose occasionally blooms from the growth in the centre of another bloom. There was a division in the Pear, as if a string had been tied round it. The larger portion of the Pear was farthest from the stem. At this constriction four or five small leaves, one of them an inch long, were found, the stems of these leaves appearing to be lost in the pulp of the fruit. On section there was no trace of a seed vessel in the smaller portion, and very slight in the larger.—Y. B. A. Z.

SILKWORMS AND SILKWORM-REARING.—2.

ALL the caterpillars that yield silk belong to the family of the Bombycina—moths easily distinguishable by their broad fore wings, under which the hind wings are hidden when the insect is at rest; also by their stout bodies, and the absence of a tongue for taking food. Though the antennae are variable they are usually short, frequently comb-like or beautifully feathered in the males. Many other caterpillars placed in different groups of the order, which includes the butterflies and moths, are producers of a silk which forms a part or the whole of the cocoons they make, by some attached to substances above ground, by others placed beneath the earth, yet these are not available for manufacture. Even amongst the Bombycina the valuable silk-spinners are but few, and these do not occur naturally in a temperate climate such as ours. Bombyx Mori, pre-eminently the silkworm, may be considered to have its home in China, and the majority of those species that have been experimented with in these recent years have their habitats either in Asia or America, and in a variety of situations, but seldom in very warm regions.

At an early period in history there evidently was some silk manufactured by a carding process. The ancients, as we call them, were, however, awake to the special excellence of the cocoon spun by B. Mori, because it was formed by a continuous

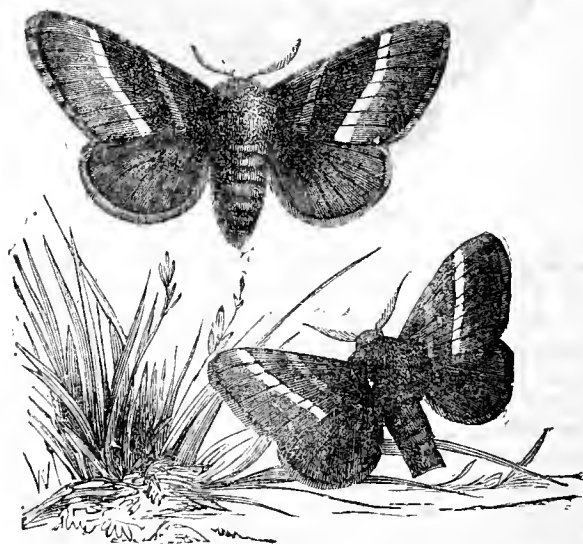


Fig. 76.—Bombyx neustria.

thread; hence it could be reeled or wound off, and a few species beside this one present the same peculiarity. We have in Britain a goodly number of Bombycina that spin cocoons, but none whose habit is to work the body of their cocoons with one thread. In the attempts that have been made, therefore, to get some sort of silk from our native insects it was found necessary to card the substance.

There does not appear to be much probability that the cocoons of any of the British moths will be turned to account in this way, and, were it possible, the rearing and management of the caterpillars present nearly as many difficulties as does the nurture of exotic species, supposing it were conducted on a large scale. Many of the Bombycina—the tiger moths, ermines, and eggars, for example—mix their hairs in the cocoons, which is sufficient to render them useless for their silk. The lackey moth (fig. 76), which we have represented with the silkworm moth for comparison, is produced from a yellow cocoon which has a superficial resemblance to the cocoon of the latter. This moth, Bombyx neustria, is darker in colour and generally less than B. Mori (fig. 77), but, like that species, it is inclined to be sluggish. The caterpillar is very different from the silkworm, slightly hairy, and of various colours. The cocoon is not very dense in its silk, and with that the caterpillar mingles a sulphur-coloured powder, the use of which is not known. Our handsome moth called the Emperor (Saturnia carpini) spins a curious double-mouthed cocoon of tough brown silk. A near relative of this species has attained to a place on the list of silkworm moths—the S. pavonia major, an insect larger and still handsomer. The cocoon, however, is not likely to become

of commercial importance, I should say; nor do appearances indicate that any of the recent candidates for the patronage of the rearers of silkworms will obtain the position so long occupied by the Mulberry species, though some persons are strong in their assertions that *Bombyx Mori* is getting "worn out."

Caterpillars, as may be here observed, are not the only sources of silk. Long ago an ingenious person conceived the idea of getting some good out of an insect commonly disliked, by collecting the webs, or rather the egg-cocoons, we believe, of various spiders. Some of these were, with difficulty, made into a coarse fabric, but the supply was insufficient for practical purposes. At a recent meeting of entomologists held in the Westminster Aquarium several cocoons of a new kind was exhibited, presumed to be the work of a *Bombyx*, and received from Queensland. The cocoon resembled that of the silkworm, *Attacus Cynthia*, only rather larger; on examination it was discovered to be the nest of a colony of young spiders. On the exterior this cocoon was tough and papery, within there was a mass of loose silk, amongst which the eggs of the spider had been deposited.

Again, seeing that in the case of *B. Mori* the connection is manifest between the leaf upon which the caterpillar prefers to feed, so silky in its texture, and the substance produced by the insect, some folks once imagined they might get silk direct from the Mulberry leaves, but the experiment did not answer. The stalks were chiefly used in the attempt, which dates back to the seventeenth century, at an early date in which Olivier de Serres also suggested that the liber of the Mulberry would afford a valuable fibre, which by plans he particularised could be made into cloth equal to that yielded by hemp or flax. Nothing much was done for many years in this direction; the project was revived some thirty years since by two Frenchmen, with no results of any importance, however.



Fig. 77.—*Bombyx Mori*.

To this same Olivier de Serres belongs the repute of having powerfully stimulated the culture of silk during the reign of Henry IV., who was anxious to stop the transmission of money from France for the purchase of raw silk. He was also famous for a book of his, the "Théâtre de l'Agriculture," the perusal of which led this monarch to say that Serres was his master in agricultural knowledge. Having published full instructions concerning the culture of the Mulberry and the rearing of silkworms, he had the pleasure to witness the effects, in the planting of many thousands of these trees, while eggs of the silkworm were distributed throughout France, with a view to ascertain what districts were best suited to its habits. For some time the production of silk and its manufacture went on favourably, but a severe check was given by the revocation of the Edict of Nantes, which drove the Protestants of the Cévennes and other places into foreign lands. Many silk-weavers came to Britain, and our silk trade grew rapidly, being perhaps at its best under the early Georges. In 1719 Mr. Lambe constructed an elaborate silk-spinning machine, which required a building nearly a quarter of a mile long. He obtained £14,000 from Parliament in reward. As lately as 1821 silk to the value of eight millions was worked up in this island, but from a variety of causes our silk factories have declined, and France yet remains the principal European country where silkworms are reared and silk goods produced.

The title of the "Father of Modern Silk Culture" has been applied by Figuier and other authors to the Abbé Boissier de Sauvages. He was himself an experienced feeder of silkworms, and had investigated the history of this insect, so far as it was then known, though hardly, we think, deserving of this pre-eminence for his works on the subject. Count Dandolo, a man of Venice, did his part, rivalling or surpassing the Abbé, by what he published upon the art of silk culture about the beginning of this century. Amongst the matters he specially insisted upon was the avoidance of overcrowding the worms, the necessity of fresh air, a careful regulation of the temperature, and regularity in the supply of food. Several Frenchmen have distinguished themselves in the present day by their diligent endeavours to encourage silk culture; and though it is difficult to mention modern names without appearing to make an invidious selection, we may single out MM. Beauvais, Robinet, and Guérin-Melville.

The last-named gentleman devoted a life to the economy of silkworms of various kinds, and he was the first to rear French specimens of *Attacus Cynthia*. Dr. Wallace has published some interesting reports of his experiments with that species, also with *B. Pernyi* and *Yama-Mai*; and Mr. Wailly of Clapham has reared successfully a number of silk-yielding species, some previously unknown in Britain.—J. R. S. C.

RESPONSIBILITY OF GARDENERS.

AT the time I wrote the article referred to by "ANOTHER MANY-HANDED GARDENER," I had been visiting some very large and famous gardens, where I found the plants in pots very much below par. Some of them were large enough and had enough. At the same time, or rather shortly before, I had visited some smaller gardens, and was charmed with the beauty and health of the plants in pots. I tried to account for it, and although I have "riled" some of the "many hands," for which I am sorry, I still think I am right both in the facts and the explanation. "ANOTHER MANY-HANDED" knows much more about Eskbank than I do, for I never heard of the show mentioned. I was thinking of Edinburgh, and some even "owre the Border." As to mentioning reasons why some at least of the large places in Edinburgh and Glasgow carry off the prizes, I should be obliged to say what had better not be said—facts that would be at once recognised, and statements which would raise much ill feeling; and as I do not intend doing this, "ANOTHER MANY-HANDED" must excuse me following in the lines laid down, although I may safely say a large purse has had best skill before now. I may say, however, that when "ANOTHER MANY-HANDED" has to employ such logic as this—Here A B (a many-handed), has beat C D (a single-handed), with plants so large that C D's house could not accommodate them, for they, like most houses about small places, were not meant for elephantine productions; therefore, C D is not such a good gardener as A B—he must be greatly confused, and this is just the logic which refers us to the prize list at large flower shows.—SINGLE-HANDED.

NOTES ON APPLES AT GIRTFORD IN 1880 AND 1881.

APPLES have been but a small and inferior crop at Girtford during the past season, the fruit also being generally small. The blossom was largely injured by the May frosts, but I consider a good deal of the defective crop arose from the floral organs being only imperfectly developed during the untoward season of 1880, the wood not being thoroughly ripened. From similar causes I had only a partial crop in 1880. The soil in which my Apples are grown is light, hot, and sandy. The summer temperature averages high, but the springs are cold and unsuitable to the setting of fruit. Perhaps, therefore, the following notes as coming from an unfavourable Apple district may be of some value, as I am convinced that only the hardiest varieties will do at Girtford.

The best early Apples were Mr. Gladstone, Early Julian, and Quarrenden. The two former bore freely in 1880 and 1881. Mr. Gladstone is a very handsome and useful early sort, a finer edition of Early Margaret, and appears also more fertile than Margaret, as the latter did not fruit last year. Quarrenden was also fertile this season, but not so much so in 1880. Lord Suffield also bore fairly this year, but not last. Golden Noble, a first-rate autumn cooking Apple, known chiefly in the midland counties as Orange Pippin, appears more entitled to the name than the true variety, as having more resemblance to the Orange, had a good crop both years. Cellini has been fertile and good both seasons. Early Strawberry bore this year, and is a good and pretty Apple. Keswick Codlin did not fruit either season. Cox's Orange Pippin has a few fruits each year. Sleeping Beauty bore well in 1880, but no fruit this season. Schoolmaster, the new and handsome Apple of which I have but one small fruiting bush, bore well both seasons, and promises well to become one of our standard fruits. Stamford Pippin, my first pomological production, has been very fruitful both on the Paradise stock and as a standard each season. The good qualities and rich vinous flavour of this Apple are hardly yet sufficiently known. It has, however, one defect, as it will not bear frost, and must be gathered before the early frosts appear. Peasgood's Nonsuch and Lord Burghley, two of my protégés, have both fruited on young trees this season. Sturmer Pippin, slightly fertile in 1880, has borne a good crop this year. Franklin's Golden Pippin, a fine dessert fruit, bore well this year, but not in 1880. Cockle Pippin had a heavy crop last year, but none this. Court Pendu Plat dropped heavily both seasons. The old and Winter Hawthorndens have each had a full crop this season, but scarcely any in 1880. Normanton Wonder, a few small fruit only each year. Norfolk Beefin bore fairly in both seasons, and this

year the fruit is very fine, indeed the largest Apple in the garden. Reinette Superfin and Warner's King had each a few fruits on young trees. Missouri Pippin, a very handsome and useful American variety, has borne freely on quite young trees and seems an acquisition. French Crab has had a few fruit in both years.

The following good Apples have not fruited as yet at Girtford—viz., Ribston Pippin, Annie Elizabeth, Nelson Codlin, and Blenheim Pippin; and although I have grown the latter Apple in various forms and in many situations during twenty years, I have never seen but two or three fruits on it. All the Apple trees seem well set with plump buds, and augur well for a crop next year if only the spring be propitious. Several seedlings have borne a few fruits this year, and in more than one instance this is apparently owing to the ringing or tying of branches tightly round with wire, the consequent stoppage of the flow of sap tending to early fertility. I am trying also the French Paradise as a stock for this purpose.—T. LAXTON, *Bedford*.

THE PHYLLOXERA CONVENTION.

WE have received from Mr. Aug. Van Geert, President of the "Chambre Syndicale" of Belgian nurserymen, the terms of the Convention which was signed at Berne on the 2nd inst. relative to the exportation of plants from one country to another. The Convention of the 17th September, 1878, is annulled, and the following are the terms of that of the 2nd November:—Plants, shrubs, and all vegetables except the Vine sent out from nurseries, gardens, and hothouses are admitted to international transit, but cannot be introduced to a State except through the custom house. The said objects shall be packed securely, but in such a manner as to permit the necessary authentication, and ought to be accompanied by a declaration of the sender and an attestation of the competent authority of the country whence sent out—*a*, That they come from a soil separated entirely from the Vine by a space of 20 metres or less, or by some obstacle to the roots judged sufficient by the competent authority; *b*, That the soil does not itself contain a plant of the Vine; *c*, That it is not there made any deposit of that plant; *d*, That if it had there had Vines attacked with the phylloxera, total eradication, poisonous operations repeated during three years' investigations, have been made, which assure the complete destruction of the insect and the roots.

The declaration of the sender accompanying plants of Vines ought—1, To certify that the contents of the packet are entirely sent out from his establishment; 2, To indicate when they have been received, and the address of the consignee; 3, To declare that no Vines are in the package; 4, To state if the package contains plants with clods of earth; 5, To bear the signature of the sender. The attestation of the competent authority ought always to be based on the declaration of an official expert. The convention of September 17th, 1878, is referred to on page 2, vol. i., new series, the issue of July 1st, 1880.

LATE-STRUCK CHRYSANTHEMUMS.

IT was not till the present season that I discovered the value of late-struck Chrysanthemums. I do not claim originality for the method, for I believe it has been practised for years by some gardeners, but at the same time it is not generally known and practised. Chrysanthemums may be said to be chiefly grown in gardens for two purposes, one for the embellishment of the conservatory, the other to supply blooms for cutting. The old method of growing Chrysanthemums answers admirably for the latter purpose, but in some conservatories tall plants cannot be accommodated. At one establishment where I was employed the show house was rather a peculiar one: it was a span-roofed structure with a passage down the centre, all the plants had to be arranged on the two shelves; the consequence was that no tall plants could be employed. In such establishments the use of late-struck or dwarf Chrysanthemums is apparent. Last year we grew a few late-struck plants, but owing to some mismanagement they did not prove equal to my expectation. This season I have grown a good batch and paid a little more attention to them; the result is we have some first-rate plants, and I find them extremely useful.

My plan of growing them is a very simple one. In spring after the cuttings are taken from the old plants the stools are then planted out. They require no more attention through the spring and summer. It is from these that I take the cuttings for my late plants about the first week in August, selecting, of course, the strongest shoots. The cuttings are inserted in large 60-pots, placing three cuttings in each, and using a rather light compost of loam, leaf soil, and sand in equal parts. The pots are then plunged in a dung frame made up expressly for the purpose, and kept close till the cuttings are rooted, shading of course

being employed in bright weather. The young shoots are rather hard at this time of year, and they take a little longer to form roots than they do in spring. When the cuttings are rooted more air must be admitted in order to prevent the plants being drawn. After the pots are filled with roots the young plants should be potted into 48-sized pots, using a good rich soil, one-fourth of which should be well-decayed manure. After the plants are established in the new compost the lights may be removed altogether for a time, and weak liquid manure may be given advantageously twice or three times a week till the plants are in bloom. It is, perhaps, necessary to state here that no pinching is required, for they invariably break with three side shoots. I have some plants that have as many as twelve shoots from the three cuttings, and many of the flowers are 3 inches across; others, again, do not break out but continue to grow on. These produce the finest flowers, some of which are 5 inches or more in diameter according to the variety. They are very useful in many ways. They are admirably adapted for small vases where single plants are required, as they carry their foliage to the rim of the pots, looking as fresh and healthy as the day the cuttings were taken from the parent plants. I have a good batch of these late-struck plants in bloom now, and others coming into flower, whilst the late plants are only just showing flower. Thus a good long season of flowering is obtained.—W. K.



WE have received a copy of the third edition of M. Ed. Pynaert's work, "LES SERRIS VERGERS," which is a complete treatise on the forcing of fruit trees under glass. The subject is treated most skilfully and exhaustively, and the text is copiously illustrated by well-executed woodcuts. In this edition M. Pynaert has made many additions and improvements on the former; all the latest systems and appliances are referred to, even including Dr. Siemens' experiments with the electric light as applied to plant-growth.

— RELATIVE to the MILDNESS OF THE AUTUMN a Lincolnshire correspondent informs us that Wallflowers are blooming in his garden, and *Myosotis dissitiflora* is a sheet of blue. A writer from Hertfordshire says that Primroses, Polyanthuses, and Auriculas are flowering very freely; and a gardener writes from Kent that "the Black Currant bushes are swelling their buds rapidly as if it were spring."

— "W.X." writes, "CHRYSANTHEMUM MADAME DESGRANGE should be grown by everyone having a supply of cut flowers to maintain. It is past now, but was in full beauty a month ago. The flowers are pure white."

— WE note with much regret the sudden death of the HON. A. LESLIE MELVILLE of Branston Hall, because he was such an ardent garden admirer, and had such a great respect for gardeners as a body, many of whom he esteemed as his friends. By his great practical knowledge of horticulture and the high social position which he occupied he was frequently applied to for gardeners, and many good men obtained excellent appointments on his recommendation. Mr. Melville had long found the advantage of sending his gardener to see the works of others, and he was, in fact, visiting the Chrysanthemum shows near London when his esteemed employer died. He was one of the oldest contributors to the *Cottage Gardener*, and occasional notes from his pen appeared in our columns up to a recent date. He died on Saturday last in the 82nd year of his age.

— THE testimonial fund that was a short time ago instituted for MR. BRUCE FINDLAY has resulted in the noble sum of £1078 17s. The presentation, we presume, was made last evening (Wednesday), a circular before us announcing that as the

date of the ceremony in the Town Hall, Manchester, under the presidency of the Mayor. We trust the recipient of this remarkable token of esteem will long enjoy the position he has won as a skilled and trusted horticulturist, and able administrator of a Society that has prospered under his management and attained to much more than local fame.

— REFERRING to the note of our correspondent on GRAPES IN SCOTLAND (page 450), another Scottish correspondent states that our readers must not consider that all cultivators adhere to the old 75° night temperature for setting Muscats, as some of the foremost cultivators have modified their views and practice on that point. Much lower night temperatures, he states, are practised than formerly, and the Vines and crops have not deteriorated, while fuel has been economised.

— "It is well known," observes a correspondent, "that CALANTHES are some of our most useful winter-flowering plants when well grown. I think the best way to grow them is singly in small pots or shallow pans. My plants have succeeded well this year. Each pseudo-bulb, old and new, was potted singly in small 48's, three parts filled with potsherds. The compost employed was fibry loam two parts, one part peat, and one of decayed cow manure. When the pots were filled with roots liquid manure was given freely. The temperature of the house was about 65° by night. The pseudo-bulbs when potted were only about 3 inches long. Growths of *C. Veitchii* are now about 9 inches long."

— WE have received the first two parts of the ICONOGRAPHY OF INDIAN AZALEAS, by M. August Van Geert, published at Ghent, a work devoted to coloured figures, with descriptions, of the best varieties of these popular plants. The work is issued in monthly parts, each containing three chromolithograph plates, those now before us being well executed. The descriptive notes are written by M. V. Cuvelier, and in the English edition are translated by Mr. Thomas Moore, jun., Chelsea. The varieties represented in these two parts are *alba speciosa plena*, Madame Paul de Schryver, Antigone, Elise Lieber, Madame Louis Van Houtte, and James Veitch.

— THE forty-second annual report of the Council of the ROYAL BOTANIC SOCIETY states that the proceedings of the Society during the past year have been very satisfactory in every sense, the receipts showing a large increase over those of previous years, and the public displaying a growing interest in the objects sought by it. The total receipts during the year were £7232, exclusive of £400 raised in debentures, and the expenditure was £4860. The Council express satisfaction at the value which is attached to the Gardens as a means of furthering the study of botany, but particularly in its relations to the other sciences, arts, and manufactures. They report an increasing number of applications from artists, medical students, and others for admission to the Gardens and for specimens; while Professor Bentley's botanical lectures are yearly more fully attended. At the same time the Gardens are rendered a source of pleasure and a valuable and agreeable retreat in the heart of the metropolis.

— ON the evening of the 16th inst. Mr. F. A. Fawkes delivered his first of three LECTURES ON HORTICULTURAL BUILDINGS at the Crystal Palace. The lecture was illustrated by diagrams, and the subject was treated in an exhaustive manner. The sites for houses, forms of structures, with details of building, were in turn referred to. Alluding to the pitch of roofs the lecturer remarked—"In order to receive the sun's rays within 10° of a right angle at noon, for sixteen weeks before and sixteen weeks after the longest day, the roof must, in London, be inclined at an angle of 37° from the horizontal, adding 1° for each degree north, and subtracting 1° for each degree south. In most cases, however, for growing purposes, a lower pitch economises space and artificial

heat, and is really more advantageous, a pitch of from 26° to 30° being very suitable. This angle of 26° is equal to a rise of about 6 inches to the foot, one of 30° to 7 inches, of 33½° to 8 inches, of 36½° to 9 inches, of 40° to 10 inches, of 43° to 11 inches, and 45° to 12 inches rise vertical per horizontal foot. For fruit-growing along the rafters from 36° to 40° would be a suitable pitch, for plant-growing in low houses from 26° to 30°, and for wall-fruit cultivation, where a narrow high pitch is advisable, from 65° to 70° may be suitable. With the same width and the same pitch, a span and a lean-to roof contain the same area." On the question of wood *versus* iron roofs for houses, the following remarks are pertinent—"For ordinary cultivating purposes the 'sash' construction is rapidly going out of fashion in favour of the 'sash-bar,' as the latter is simpler, cheaper, affords less obstruction to light, and less woodwork to rot or harbour insects. This suggests the question, Is iron better than wood, or not? As it is desirable to employ a minimum mass of materials consistent with strength and durability, iron is far preferable in this respect to wood. It is also more durable if well painted; if painting be neglected it will rust, damage the plants, and wear out. On the other hand, iron houses are more costly than wood; heat is conveyed away from the interior rather more rapidly; and unless the glass is carefully put in it is apt to crack." [For these reasons, for growing houses, wood is preferred to iron. Copper has been used for sash-bars: it is much better than iron, but proportionately more expensive. If wood be used, it is extremely necessary that it be thoroughly seasoned, on account of the varying temperature within and without, and the exposure. If the wood is not well seasoned crevices will soon appear, in which moisture and insects will be harboured, and the house will soon become useless.]

DOUBLE ZONAL PELARGONIUMS.

I AM sure many of your readers will, like myself, be much obliged to one who signs himself "A LOVER OF HORTICULTURE" for his remarks with regard to Pelargonium Guillon Mangilli. It has always been a mystery to me why this double Pelargonium in particular should have received so much commendation. I began to think it must be my want of taste in not admiring it. I confess I cannot really like any of the double Pelargoniums I have seen as yet. No doubt they are useful for cut flowers, as they last longer and the petals do not fall so soon, but there is a roughness and coarseness about most of them, and generally speaking they run to leaf instead of flower. I have discarded one after another, and have yet to find one which I think worth the trouble of careful cultivation. When at different times acting as judge at some of the larger shows, as Leeds, York, and elsewhere, I have always noticed when the plants of double Zonals have been staged next to, or in the same line as the single, how very inferior the effect is. There is, I consider, much more variety in colour and habit among the singles. Nor can I see the wisdom of growing too many plants in pots of the same kind of any of the Zonals. Vesuvius, for instance, is no doubt very free-flowering, but there are too many good varieties now which with proper management may be made to bloom nearly all the year round, that it seems a pity to rely on a few only.—C. P. P.

NOTES ON VEGETABLES.

WOULD it not be a valuable innovation to devote a column to short notes on vegetables? We have all obtained aid from the fruit notes, and doubtless much knowledge would thus be disseminated. What would, perhaps, be of most interest at this time would be notes as to the usefulness of the different varieties of standard vegetables. We are all generally agreed as to the best Apples and other hardy fruits; but with vegetables, which are constantly being added to with new varieties which are to supersede all the older kinds, there might not be the same unanimity amongst growers. The Journal is always filled with valuable matter, and it is astonishing how week after week such valuable numbers are produced; but I do not think your readers would like the Journal less for the new feature I now propose.

May I set the stone rolling by saying a few words as to the best Potatoes? I am not old-fashioned, but really after trying new kinds year after year, aye, even some that have had certificates

granted only the other day, I returned to old varieties for garden croppers. Next year Myatt's Prolific Kidney will be grown in the greatest quantity. Next in quantity will be the Fortyfold and Dons. There are no Potatoes, either new or old, to surpass these in flavour. The two last-named are not extra large croppers. The kidney when well grown has very large crops. The seed Potatoes ought to lie in single layers on shelves, and one single sprout alone allowed to grow. A soil rich in Potato food is another requisite. These conditions will insure a very large yield of fine kidneys.—E. S.

CHRYSANTHEMUM GOLD BUTTON.

LAST spring I placed two plants of this variety in a border along with some others; by the end of September, when they commenced blooming, they were 2 feet in diameter and densely covered with flower buds. About the middle of October they were taken up, potted, and placed in a cool house, and until the present time we have been cutting from them every day. For those who have little accommodation for growing flowers this is one of the easiest managed and useful plants we have for providing a supply of cut flowers during October and November.

We have several other good varieties of small-flowering Chrysanthemums here, but none that produce the same quantity of flowers; and then the bright lively colour—clear bright yellow, shows to good advantage when associated with green Fern fronds.—JNO. SHORT, *Darlington*.

WHAT PLANTS USE.

(Continued from page 372.)

THE SOURCES OF PLANT FOOD—PHOSPHORIC ACID.

A REFERENCE to the analytical table of farmyard manure will show that phosphoric acid is generally present in fair quantity. In stableyard manure, owing to the hard feeding of the horses, it is generally more abundant still. Animal excreta in almost all cases have, in addition to organic and other mineral matter, a large per-centage of phosphoric acid. The ash of horse droppings contains 10 per cent. The same analysis shows 62 of silica, so the 10 per cent. must be considered high. The great amount of silica is present in the hay, but is of small account to garden crops. It, therefore, serves merely to dilute the other matters, and of itself counts for little as a garden manure. Guanos are generally very rich in phosphoric acid and ammonia salts, but they vary much. Still, after the ammonia guanos owe very much of their value to the phosphoric acid they contain. A good guano should possess 20 to 25 per cent. of bone earth (phosphate of lime) and about the same of ammonia. It is not often that they are so rich, and often they are very deficient in both. Mineral phosphate of lime is found in many different districts in the form of apatite and coprolites—the last supposed to be the remains of animal excreta. These are to be had in the markets in a manufactured state, such as superphosphate of lime. Very often they are mixed with other ingredients, such as dissolved bones, kainit, nitrate of soda, and guano, and sold as "special manures." Some of these special manures are very good for the purposes for which they are offered, others worth very little. It is safe to buy only those manures sold by respectable firms, who have a reputation to lose and who issue guaranteed analyses.

These manures are generally used and their value understood, therefore we will not take up space by any further reference to them. But we wish to draw the attention of gardeners to the value of night soil as a means of furnishing phosphoric acid to soils deficient in that necessary compound, or to crops which demand it largely. Were it possible to utilise all the sewage which is at present worse than wasted, there would be no need for the importation of phosphoric acid in any form. We continually import food of all descriptions and export little. In that food we import potash and phosphoric acid, and all the other mineral elements which plants use, and these, in conjunction with what are derived from our own vegetable productions, would, if applied without waste to the soil, make that soil richer year by year, instead of allowing it, as in too many districts, to grow poor and less productive. How to profitably apply it is still an unsolved problem, but there can be no doubt that in many a country place the sewage from mansions, as well as drainage from farm and stable yards, are allowed to be wasted because of the ignorance which prevails regarding its value. There is no more powerful or more generally useful manure sold or bought than the sewage water with which we pollute our streams and rivers. Its value is not entirely owing to its phosphoric acid, but to the fact that it contains all the mineral matters required by plants in abundance.

Moreover, it is rich in nitrogenous matters, which in the soil readily become ammonia salts, nitrates, &c. We append a table showing the per-centage of each compound in night soil:—Phosphoric acid, 37.17; sulphuric acid, 2.10; potash, 10.40; soda, 2.83; lime, 14.98; magnesia, 13.48; salt (common), 1.59; oxide of iron, 4.66; insoluble matter, 12.79.—Total 100.

The reader on examining this table may be inclined, considering what we said on potash and comparing it with the list of cultivated plants and the per-centage of potash found in their ashes, to think that potash is deficient; and so it is when only the solid matters are taken, but when to these is added the urine, he will see that it supplies what the former wants. Ash of Urine (Human).—Phosphoric acid, 4.80; sulphuric acid, 1.68; potash, 6.65; salt, 55.87; lime, 15.60; magnesia, 14.80; iron oxide, 0.24; insoluble matter, 0.36.—Total 100. Common salt is largely present, but leaving that—we shall say something on that further on—it will be seen that the potash is present in greater quantity than any other compound.

As sewage comes from mansions it is very largely diluted with water. When gardens lie below the level of the house this can be economically applied by means of pipes and hose, or even by the water-barrow and can. In dry hot weather no better liquid manure can be had for ordinary garden crops, and even plants in pots, than water tainted with sewage. For Vines it is equal, we think surpasses, the best guano water. For all kinds of Cabbage crops it is first-class. Indeed there is nothing to which it may not be applied with benefit. Melons supplied with no other manure will thrive well, set, and swell off large crops year after year for an indefinite period, if freely supplied with mixed sewage largely diluted with water. Trees and shrubs thrive on it, as we can prove. Some years ago plantations were made round this place, which up till two or three seasons ago made no progress. Sewage in large quantities being available, we covered the ground among the trees with it, and left it there for the grass to cover. The result is a magnificent growth, when only starvation was apparent before.—SINGLE-HANDED.

DEATH OF DR. DENNY.

It is with unfeigned regret that we announce the death of Dr. Denny, whose name has been a household word in the horticultural world for some years past. A few months ago Dr. Denny had an attack of paralysis, which laid him aside and incapacitated him for the performance of his professional duties, but his friends hoped that a change of air to the bracing climate of the east coast would have the effect of restoring him to a degree of convalescence which would enable him to recover sufficiently from the attack as to permit him to resume his former pursuits. He returned very much better in health; but the recovery was only temporary, for he succumbed on the 15th inst., at the age of sixty-two.

Dr. John Denny was the only son of Mr. John Denny, surgeon, of Ipswich, and at the time of his death was resident physician of Stoke Newington Dispensary, an appointment he held for upwards of thirty years. But it was chiefly as a horticulturist that Dr. Denny made his mark. The speciality he took up was the race of Zonal Pelargoniums, which he set himself to improve, and which he did improve with marked success. The mantle of Donald Beaton appeared to have fallen upon him, for he carried out the cross-breeding principle of that remarkable man with great success, and thereby gave to the world some of the finest forms of the Zonal Pelargonium that have ever been produced.

Dr. Denny was for many years, first a member and afterwards Chairman, of the Floral Committee of the Royal Horticultural Society, and for six years before his death was a member of the Council, while at the time of his death he was a Vice-President of the Society. None but those who were intimately acquainted with Dr. Denny knew the extent of his devotion to the interests of the Society, and the assiduity with which he threw himself into the minutest details of its working. He was most jealous of its honour, and he strove hard to make it the faithful representative of horticulture in its highest and best sense. In the death of Dr. Denny horticulture has lost a brilliant ornament, and horticulturists a warm friend.

TREE-LIFTING.

AN invitation to Dunse Castle, near Dunse in Berwickshire, to see a novelty in tree-lifting, was duly taken advantage of, and when I arrived there I found several trees set up, while all around were others lying prostrate, and which were to be raised in due course. These trees had been overturned by the disastrous gale of October 14th, some of them forming a portion of a Lime tree

avenue leading to the Castle, and said to be from 150 to 200 years of age. Owing, most probably, to the poor character of the soil the trees were not so large as might have been expected; still, they are of a size sufficient to make many prophesy that the possibility of setting them up again was extremely problematical. However, Mr. Hay, the proprietor, desired them raised, and Mr. Shearer was appointed to do it. All had large balls of roots. Many of the branches were smashed, and the whole of these were cut back to the main trunk. Three strong wires were then fastened near the top of the tree, also guy ropes and a thick wire rope to pull them up with. Two screw-jacks were employed to raise the trees to an angle of 45°, then a winch 80 yards distance was set to work to draw up the tree by means of block and tackle to a perpendicular position. The soil was then filled round the roots, and the work completed by tying the ends of the three wire ropes to stakes driven into the ground at equal distances round the tree. The trees were being lifted at the rate of one a day.—B.

THE METEOROLOGICAL SOCIETY.

THE opening meeting of this Society for the present session was held on Wednesday the 16th inst., at the Institution of Civil Engineers. Mr. G. J. Symons, F.R.S., President, in the chair. Twenty-seven gentlemen were ballotted for and duly elected Fellows of the Society.

The evening was devoted to an account of "the Gale which passed across the British Isles, October 13th and 14th, 1881," which had been prepared by Mr. G. J. Symons, F.R.S., with the assistance and co-operation of Mr. C. Harding and other gentlemen. There is evidence of the storm being formed in the Atlantic about 150 miles south of Nova Scotia on October 10th, and that at noon on the 13th there was a considerable disturbance about 600 miles west of Galway. At that time there were scarcely any instrumental indications in the British Isles of the coming storm; the barometer was falling at Valentia, but not rapidly; and at some of the western English stations it was rising. The curves of barometric fluctuation show very plainly the advance of the depression from west to east, for while at Valentia the minimum occurred at 2 A.M. on the 14th, on the east coast of Norfolk it is recorded that it did not occur till 4 P.M. This fact, coupled with others, seems to indicate an easterly progression of the barometric minimum at nearly forty miles per hour. As far as the sea is concerned, the chief force of the gale was felt in the afternoon of the 14th in the German Ocean, and there the great loss of life and destruction to shipping seems mainly due to the exceptionally violent squalls which were peculiar to this gale, as well as to the extremely sudden manner in which the wind increased to hurricane force. The afternoon became quite darkened by the salt water blown into the air, so that it was impossible to see a ship's length ahead. The barometric chart for 9 A.M. on the 14th showed that the pressure in the north of England was an inch lower than in the south, and nearly 2 inches lower than in the south of France. The area over which injury was produced was very large, and, although not without precedent, it was happily rare. The record of 56 lbs. per square foot at the Royal Observatory, Greenwich, was the highest ever registered in that locality, and close by thirty-five trees were blown down in the park, and 15 feet blown off the top of a spire which had been erected about forty years, the stone of which shows no sign of decay, and which had retained its position almost, if not wholly, by the gravitation of its mass. The general opinion seems to be that the structural damage over the greater part of the country was by no means unprecedented, and in the greater part of Ireland and the south-west of England was not even of an unusual character, but along the east coast and in the east midlands the damage was excessive, and on the north-east coast unprecedented. In Scotland the destruction of trees was enormous.

Mr. J. Wallace Peggs, F.M.S., also read a paper on the "Structural Damage Caused by the Gale as Indicative of Wind Force," and remarked that since the Tay Bridge disaster attention had once more been directed to the subject of wind-pressure. He suggested that a conference of delegates from societies specially interested in the subject should be held, who should make experiments and carefully consider the whole question.

POTATO CULTURE.

As I have to supply sixty people for nine out of twelve months, I must look well to the Potato supply. I have tried many different varieties for the last five years, both kidneys and rounds, my aim having been to obtain those which my employer likes, that would bear rough treatment, and yet would be of good quality. It is very well to talk about 16 tons to the acre when the land and Potatoes are worked with fork and spade and the land in a high state of cultivation, but all cannot obtain good land, and what Potatoes are there that will bear rough cultivation? I have Potatoes that I give superior cultivation, and I secure good crops, but they will not bear rough cultivation. For instance, the Woodstock Kidney will not with me, but Suttons' Magnum

Bonum will, and so will the Scotch Champion. The produce is different, Suttons' Magnum Bonum takes the lead. I have tried both sorts side by side, and I have too many small tubers on the Champion. The flavour is good, but that of Magnum Bonum is better.

The following is what I term rough cultivation. A piece of land is ploughed up late in the autumn after root crops, such as Mangold, Swedes, Kohl Rabi, or Vetches, or a piece of lay land is ploughed up 4 inches deep, the latter ploughed again early in February. The land is very poor, and is left rough until the second week in March. The land is harrowed with one horse, and it is thrown up in ridges 2 feet apart with the plough waiting the first fine day. Farmyard manure is thrown between the ridges, which are 4 feet apart, 16 to 20 tons an acre being employed. The Potatoes are planted on the manure; at the same time I distribute 2½ cwt. of dissolved bone to an acre, and draw the earth over the Potatoes with a mattock. There is still left a ridge between every row. When the Potatoes commence growing this ridge is split with the plough forward and backward, and so left until the land is fit to work, when the Potato stems will be 6 inches high. I then distribute sixteen bushels of soot to an acre as carefully as if I were sowing Carrot seed in the rows; then a man with a fork goes through each row once to bring the earth around the Potatoes. The earthing-up is commenced with the plough, and is done in three times, and so finished it remains until the harvest. The produce is, Magnum Bonum 12 tons an acre, and Scotch Champion 10 tons an acre.

I have only tried two additional varieties this year—Beauty of Hebron and Suttons' Reading Hero, the former old with some, but quite new to me; superior in every way to Early Rose. The Reading Hero is a first-rate round Potato, the flavour very good especially when steamed. I did not try it under rough cultivation. I planted 7 lbs., which made a row 28½ yards long with other sorts, and I made a great mistake in planting them about 3 feet apart when they ought to have been 4 feet, as they grow very high and strong. The land was moderately rich, and I applied a little dissolved bone at the time of planting. The produce was 300 lbs., and 2 lbs. diseased.—R. R. S. H.

NOTES ON BEDDING AND BEDDING PLANTS.

ON the whole we have not much to complain of; we want more variety. It is common to hear such remarks as the following made in reference to the flower garden—"It is very nice, but the same as last year, or was it the year before?" Change, then, is of the greatest importance. I confess I find it difficult often to give that change, and to impart, if possible, a new aspect to the beds year after year. It is not a little remarkable we do not hear the same observation on other plants used for the embellishment of the garden. Thus, a bed of Rhododendrons or Azaleas calls forth no such remark.

It must be observed that the style of bedding required here is that of beds full of flowers from the end of July until frost destroys them. A few years since we found no difficulty in filling them with plants to insure the desired result, and also to give a change year after year. *Caleolarias* have failed; *Verbenas* have followed, for they disappoint us; one other trial I will give them—viz., to raise seedlings every year. I have tried *Phlox Drummondii* and found them quite out of place when arranged with other bedding plants, as they grow far too high and straggling to correspond with others; an isolated bed would doubtless be the best. I found the variety *P. coccinea* only wanting in compactness to make it very valuable; the colour is very rich. Seedling *Petunias*, like the *Phlox*, in some seasons makes a bold isolated bed; in the flower garden proper it is out of place and not to be thought of. One only of the selected varieties we find can be depended upon—namely, *Spitfire*; this makes a fine bed. Let us turn to the brighter side of the subject and note one or two plants that I find of especial value. Many have been the contrivances to keep and increase that good bedding plant *Polemonium variegatum*, but generally with unsatisfactory results. Two years since we determined to deviate from the practice of taking up and potting the plants, and allowed them to remain in the ground. Plants that have been considered hardy succumbed to the last trying winters, but not the so-called half-hardy *Polemonium*; never have I seen it half as good as this summer. It is, moreover, really increasing, and we cannot have too much of it. To see its full beauty it must be grown well in a rich soil. It is suitable as an edging for beds of many plants. One of our prettiest beds this summer contained a very dark *Heliotrope* edged with the feathery creamy foliage of the *Polemonium*.

Another bedding plant that proved serviceable last summer is the *Tropæolum*, and where *Caleolarias* fail we have no equal to

the Tom Thumb varieties. One thing must be insisted upon—viz., purity of stock, otherwise disappointment will ensue. The safest plan is no doubt to save the seed. This is best done by striking cuttings, wintering them on a shelf near the glass, and planting them out; the seed saved from these is likely to give every satisfaction. I find them the most effective when employed in ribbon borders or as panels in large beds—viz., between dark blue or scarlet. A softer combination will be found between white and pink. I am speaking of the soft yellow *Tropæolum*; the scarlets are equally good.

The last plant to be noticed is a very dwarf, slender-stemmed, scarlet Dahlia. I do not know its name; I had it from a neighbour some years ago. I find it excellent for a back row in ribbon borders or as the centre of large beds. It has one fault—it does not flower so early in the season as *Pelargoniums* and other plants, but later on and till frost commences nothing gives more satisfaction. I have long been in want of a good yellow and a white to match this red. Though I have tried some half-dozen varieties this last summer—White Bedder, Snowball, Alba, Drap d'Or, and Golden Bedder, they all seem wanting in the qualifications so conspicuous in the red variety above mentioned. They are without exception far too stiff and brittle, though they flowered profusely, but late. My red variety is neither stiff nor brittle, having a fine wiry stem. Its graceful procumbent habit makes it as tractable as *Verbena*. This with the great number of blooms produced renders it invaluable.—JOHN TAYLOR, *Hardwicke Grange*.

RHODODENDRON PRINCESS ALEXANDRA.

THE greenhouse hybrid *Rhododendrons* of the *R. javanicum* and *R. jasminiflorum* type are deservedly general favourites for their delicately richly coloured flowers, which in all the best forms are freely produced. One that especially deserves a high position is *Rhododendron Princess Alexandra*, of which a spray is shown on the next page. It is by no means a novelty, having been raised some years ago by Mr. Taylor; indeed it was one of the earliest he obtained. Now it is one of the cheapest, and being of good habit, easily grown, and profuse in flowering, it certainly has sufficient good qualities to recommend it strongly to the attention of all who endeavour to render their greenhouses as attractive as possible. The flowers are not quite so large as those of some of the type—such, for instance, as *R. Taylori*. They are rather more slender but neat in form, and are produced in remarkably large and compact trusses. Individually the flowers are almost pure white, with a faint delicate tinge of pink that imparts a very pleasing appearance to the heads. A beautiful specimen in Messrs. J. Veitch & Sons' nursery at Chelsea was, a week since, in fine condition, and has been greatly admired by many visitors. We understand that this form was the result of a cross between the well-known *R. Princess Royal* and *R. Brookei*.

CHRYSANTHEMUM SHOWS.

KINGSTON.—NOVEMBER 17TH AND 18TH.

CHRYSANTHEMUM growers and exhibitors throughout the kingdom have this year felt more or less interest in the Kingston Show, for there was a possibility of the champion challenge vase contest being finally settled in favour either of the north or south. A third competitor, however, having entered the lists with success the result is deferred until next year, when the interest will be redoubled, as the class will be confined to the three winners. The magnificent blooms in these stands will be long remembered, and that they constituted the great feature of the Show there is no doubt. In the other classes also the blooms were good—the best we have seen this year; and though some of the classes did not appear to be so well filled as usual, yet the competition was keen in the majority. Two very fine collections of specimen plants and several handsome groups were staged, but most of the others were below the average, as has been the case at most exhibitions this year, especially as regards Pompons, very few really good examples of which have been shown. In the miscellaneous classes plants for table decoration were numerous and of excellent quality, being very usefully employed as central lines on the tables between the rows of stands of blooms. Primulas and berry-producing plants were also abundant, and with the fruit, including fine Apples and Pears, constituted one of the best shows held by this Society. The Drill Hall was well filled without being crowded, and a brighter or more tasteful arrangement of the exhibits could not have been desired. Mr. T. Jackson, the Secretary, and other assisting members of the Committee, certainly deserve to be highly complimented upon the admirable result of their efforts to provide an attractive exhibition.

Cut Blooms.—The "cup" class formed the great feature in this section, and in the six collections entered by far the best blooms in the Show were staged. Both incurved and Japanese varieties were grandly represented, but the greatest weight was in those from

Liverpool, and it soon became evident that the southern exhibitors had no chance of obtaining the cup this year. This surprised many, for the Liverpool Show is fixed for the 30th inst., and it was, therefore, surmised that *Chrysanthemums* in that district were even later than usual, but it is evidently not the case as regards at least two exhibitors, or they could not have staged such finely developed blooms. Mr. F. Faulkner, gardener to F. R. Leyland, Esq., Woolton Hall, Liverpool; Mr. W. Tunnington, gardener to Chas. MacIver, Esq., Calderstone, Liverpool; Mr. C. Gibson, gardener to J. Wormald, Esq., Morden Park; Mr. G. Harding, gardener to J. Galpin, Esq., Putney Heath; and Mr. Hinnell, gardener to F. A. Davis, Esq., Anglesea Road, Surbiton, were the competitors, Messrs. Harding and Tunnington having previously won the cup in 1879 and 1880 respectively. The two Liverpool collections were magnificent, and so extremely close in quality that it was very doubtful which would take precedence. The flowers were most carefully compared individually and collectively, and after more than an hour's deliberation the Judges concluded their difficult task by placing Mr. Faulkner first and Mr. Tunnington second. The decision met with general approval, for though the difference was very slight, there were a few points in favour of Mr. Faulkner's stand taken as a whole. His incurved blooms were extremely even, of large size, remarkable substance, and good form, including the following varieties—*Prince of Wales*, grand; *Mr. Brown*, *White Venus*, *Prince Alfred*, of fine substance; *Blonde Beauty*, *Princess Beatrice*, *Queen of England*, *Hero of Stoke Newington*, *Mrs. Dixon*, neat; *Mrs. Heale*, fine; *Barbara*, *Princess of Wales*, *Mr. Howe*, *Jardin des Plantes*, *Lady Hardinge*, *Golden Empress*, magnificent; *Inner Temple*, excellent; *Prince of Teck*, *Beauty*, good; *White Beverley*, *Cherub*, fine; *Empress of India*, *Sir Stafford Carey*, and *Venus*. The Japanese in the collection were also handsome, bright, and large, representing the under-mentioned varieties—*Cossack*, rich colour; *Soleil de Levant*, large; *Mdlle. Moulise*, *Cry Kang*, fine; *La Nympe*, good; *Comtesse de Beauregarde*, *Hiver Fleur*, large; *Mons. Lemoine*, rich, neat; *Peter the Great*, *Oracle*, good; *Arlequin*, *Baronne de Prailly*, large; *James Salter*, *Gloire de Toulouse*, *Fair Maid of Guernsey*, *Bismarek*, good; *Striatum*, handsome; *Red Dragon*; *Nuit d'Automne*, *Elaine*, *Tendresse*, *Père Delaux*, very rich in colour; *Bouquet Fait*, and *Khedive*.

Mr. Tunnington's collection was especially strong in Japanese, the blooms being of admirable size and substance. Incurved blooms were also good, and some were unusually large, though compact. The varieties were *Queen of England*, *Alfred Salter*, *Golden Empress*, *Empress of India*, *Princess of Wales*, *Emily Dale*, *Prince Alfred*, *Mrs. Heale*, *Sir Stafford Carey*, *White Venus*, *Refulgence*, *Venus*, *Inner Temple*, *White Beverley*, *John Salter*, *Beauty*, *Mrs. J. Rundle*, *Mrs. Bunn*, *Barbara*, *Princess Beatrice*, *Jardin des Plantes*, *Lady Hardinge*, *St. Patrick*, and *Prince Teck*. The Japanese were *Sultaine*, *Japonnais*, *Père Delaux*, very rich in colour; *Soleil de Levant*, *Magnum Bonum*, *Diamond*, *Hiver Fleur*, *Apollo*, *Fair Maid of Guernsey*, *Tendresse*, *Nuit d'Automne*, *Madame d'Audiguier*, *Peter the Great*, *Cry Kang*, *Meg Merrilees*, *Exposition de Toulouse*, *Bismarek*, *Sarnia*, *Ethel*, *Baronne de Prailly*, *Criterion*, *Red Dragon*, *Mons. Lemoine*, and *Elaine*. The third prize was awarded to Mr. C. Gibson, whose incurved blooms were much smaller than in the preceding collections, but his Japanese were considered by many the best in the class. They were especially remarkable for the richness and clearness of the colours. Mr. Harding was adjudged an extra prize for neat examples, not, however, up to his usual standard, but it is to be hoped the credit of the southern growers will be well maintained by him next year at the final settlement of the competition.

Though less interest attached to the other classes for blooms, yet in several the competition was keen, and the exhibits of fine quality. The handsome timepiece offered for the best twenty-four incurved varieties was secured by Mr. Faulkner, who certainly has no cause to regret his journey south. The blooms were similar in varieties and quality to those in the eup collection, and therefore need not be enumerated. Mr. Tunnington was again a very close second with handsome examples. Mr. W. R. Strong, gardener to Mrs. David Reid, Kenwood Court, Virginia Water; and Mr. Burns, gardener to H. A. Rigg, Esq., Wykham Lodge, Hersham, followed in the order named, both showing well. Ten collections of twelve incurved varieties were staged, the premier stand from Mr. E. Molyneux, gardener to W. H. Myers, Esq., Swanmore Park, Bishop's Waltham, including some particularly handsome blooms of the leading exhibition varieties. Mr. J. Strong, gardener to H. Sweet, Esq., Dornay House, Weybridge, was second; Mr. J. McPherson, gardener to S. Page, Esq., St. Leonard's Lodge, Surbiton, third; and Mr. E. Beckett, gardener to J. P. Currie, Esq., Sandown House, Esher, fourth. So nearly equal in merit were several other stands that extra prizes were awarded to Mr. J. Hill, gardener to H. Savory, Esq., Potters Park, Chertsey; and Mr. G. King, gardener to R. Few, Esq., Wolsey Grange, Esher. Japanese were well represented in the classes for twenty-four and twelve blooms respectively. In the first-named Mr. E. Beckett was the most successful exhibitor, the blooms being of good size, very bright, and fresh. *Criterion*, *Daimio*, *Triomphe du Nord*, *Alba Plena*, *Bronze Dragon*, *Lutea Striata*, *Père Delaux*, and *Hiver Fleur* were the best. Mr. Molyneux followed very closely, and Mr. G. King was third. The leading stand of twelve was from Mr. J. Strong, very satisfactory examples. Messrs. Burn, McPherson, Gibson, and Hill followed in that order. Mr. J. Hill had the best stand of twelve reflexed blooms, representing *Cloth*

of Gold, Christine, Golden Christine, Mrs. Forsyth, Garibaldi, Dr. Sharpe, Chevalier Damage, and Phidias; Messrs. Sallows and Watson taking the second and third prizes.

Four neat collections of Pompons were staged in the class for a dozen bunches, distinct varieties. Mr. J. W. Moorman, gardener to Miss Christy, Coombe Bank, Kingston, secured chief honours with an excellent stand, including good examples of St. Michael's, James Forsyth, Mustapha, Bijou d'Horticulture, Hellene, Bouton d'Argent, Nelly, Anna de Belocca, La France, Madame Marthe, and Rosinante. Mr. J. Lyne, Wimbledon, was a good second, and Mr. W. Clark, gardener to H. Nagle, Esq., Kingston, was third. Anemone varieties

were not very largely nor well shown, the most noteworthy collection being the stand of twelve Anemone Pompons with which Mr. Lyne secured the first prize in the class. These were very bright and clean; Firefly, Mr. Astie, Dick Turpin, Calliope, Antonius, and Marie Stuart being the varieties. Large-flowered Anemones were contributed by Messrs. Hill, Gibson, and Bennett, who secured the prizes in that order.

Groups and Specimen Plants.—In the class for a group of Chrysanthemums arranged for effect in a space not exceeding 50 square feet there were four competitors, their contributions adding greatly to the brightness and beauty of the Exhibition. Mr. C. Bond, The Gardens,



Fig. 78.—RHODODENDRON PRINCESS ALEXANDRA. (See page 476.)

Orford House, Ham, was adjudged premier honours for a tasteful arrangement of healthy well-grown plants bearing blooms of good substance. Mr. J. Bass, gardener to A. Price, Esq., Park Side, Ewell, was second, the blooms and foliage of the plants indicating careful culture; the colours too were well disposed. Mr. C. Orchard, gardener to J. Galsworthy, Esq., Coombe Leigh, Kingston Hill, and Mr. T. Jacobs, gardener to J. Shand, Esq., Fulbrook, Old Malden, followed. Specimen plants were not of first-rate quality except in a few instances; the two finest collections being those in the class for six trained large-flowered specimens, which were so nearly equal in merit that after much deliberation the Judges awarded equal first prizes to the exhibitors, Messrs. G. King and E. Beckett. Many growers and exhibitors, however, considered Mr. King's plants entitled to prece-

dence, for they were not quite so tightly and formally tied as the others; the foliage was remarkably vigorous, the blooms abundant and of good size. They were trained flat, 5 to 6 feet in diameter, very even and healthy. The specimen of John Salter, 6 feet in diameter, with considerably over a hundred fine blooms, attracted much attention. Prince of Wales, Mrs. G. Rundle, Mrs. Dixon very large, Lady Harding, and St. Patrick were the other varieties. Mr. Beckett's collection included Mrs. G. Rundle, Prince of Wales, Mr. G. Glenny, Hiver Fleur, Prince Alfred, and Mrs. Dixon also large, slightly flatter than the first named, and well flowered, though the blooms were in some cases rather small. The plants in both collections were admirable examples of cultural skill. Mr. Sallows had the best three specimens, neatly trained examples of Mrs. G. Rundle, Mr. G. Glenny, and Mrs.

Dixon. The same exhibitor led with three standards—those which gained honours at Richmond—neat and even; Messrs. Beckett and Jacobs securing the other prizes. Mr. Lyne had a good collection of six Pompons—Rosinante, Mr. Astie, Antonius, White and Lilac Cedo Nulli, and Mustapha being the varieties. Mr. G. King gained the chief prize for the best single specimen with Mrs. Dixon, 5 feet in diameter, evenly trained, healthy, and well flowered; Mr. Sallows following with St. Patrick, and Mr. Jacobs with Fair Maid of Guernsey.

Miscellaneous Plants.—The principal exhibits in the classes for miscellaneous plants were the groups, for which four substantial prizes were offered. Mr. C. Attrill, gardener to C. J. Freake, Esq., Bank Grove, Kingston, was placed first with a bright and informal group, comprising Crotons, Dracenas, Primulas, Azaleas, Lobelias, Fuchsias, and a handsome specimen of *Aloe variegata* in the centre. Mr. J. Brand, gardener to W. Clay, Esq., Elm Villa, Kingston, followed with a neat arrangement of fine-foliage plants chiefly, with a few Chrysanthemums. Mr. J. Croxford, gardener to Mr. Dunnage, Albany House, Surbiton, was third, a fine *Epiphyllum* in the centre of the group being especially noteworthy. Table plants were excellently shown by many exhibitors, Aralias, Dracenas, and Crotons being largely represented. Messrs. G. King, J. Burns, and J. Hinnell were the chief prizetakers. Mr. King also led in the class for berry-bearing plants, showing the same neat specimens of *Capsicum Tom Thumb* and Princess of Wales which he had at Richmond in the previous week. Primulas and Cyclamens were numerous, and mostly in satisfactory condition.

Fruit.—For a collection of six dishes of fruit Mr. E. Beckett carried off the chief prize with well-coloured black Grapes and fair Apples and Pears, Mr. Croxford following with smaller Grapes but similar in other respects. Apples were numerous and of good quality. Eight collections of four dishes were staged; Mr. J. Hill being first with Cox's Orange Pippin, King of Pippins, Blenheim Pippin, and Dredger's Fame, all even and of fair size. Mr. J. W. Moorman was a very close second, having superb examples of Hoary Morning and neat King of the Pippins. Mr. E. Beckett took the third place. Pears were not quite so noteworthy. Messrs. J. Benson, gardener to W. H. Roots, Esq., Canbury House, G. King, and C. Attrill, securing the prizes in that order.

Prominent among the exhibits not in competition were two handsome groups of Chrysanthemums contributed by T. H. Bryant, Esq., Glencairn, Surbiton Hill. These were valuable additions to the Show and were greatly admired. Mr. G. Smith, Kingston, sent examples of ornamental stoves. Messrs. J. Jackson & Son exhibited six bunches of Kempsey Alicante Grapes of good size and beautifully coloured; they also had several small groups of plants, and an example of an apparatus suitable for heating a small greenhouse.

WESTMINSTER AQUARIUM.—NOVEMBER 17TH AND 18TH.

The thirty-fifth annual Exhibition of the Borough of Hackney Chrysanthemum Society was held, as has been the custom for the past few years, in the Royal Aquarium, Westminster; and though the plants and cut blooms were neither so numerous nor of such good quality as in some previous years, yet collections of no ordinary merit were staged in several of the principal classes. However, the great feature of the Exhibition were the Apples, Pears, and vegetables, in all of which classes the competitors were very numerous and the general quality remarkably good.

Groups and Specimen Plants.—The majority of the plants were arranged in a large semicircular bank at one end of the building, forming an imposing group viewed as a whole. To this effect the collections in the open class for the best group of Chrysanthemums in a space not exceeding 100 square feet contributed largely, for some well-grown healthy plants were included in them. Four groups were entered, the principal prize—a five-guinea silver cup presented by the Aquarium Company—being secured by Messrs. S. Mahood & Son, Windsor Nurseries, Lower Richmond Road, Putney, who had a well-arranged sloping bank of plants bearing handsome blooms, the colours of which were extremely clear and bright. Mr. G. Stevens, Putney, took the second place with a similarly satisfactory group; indeed the difference in merit was very slight between these two exhibits. Mr. Butcher, gardener to R. A. Glover, Esq., The Priory, Hadley, Barnet, was third with a slightly formal arrangement, but the plants were healthy and the blooms of good substance. The collections of ten plants in the borough class were also notable. Mr. H. Langford, The Gardens, Coleraine House, Stamford Hill, led with well-flowered specimens of President, Julie Lagravère, Barbara, and Prince of Wales among others of nearly equal merit. Mr. S. Gilbey, gardener to B. Booth, Esq., The Cazenoves, Upper Clapton, followed, his most noteworthy plant being a neat dwarf specimen of Rose Trevenna, very pretty. For six plants of large-flowering varieties in 12-inch pots Mr. Langford was again the leading exhibitor, having compact freely flowered specimens of Lady Talfourd, John Salter, Mr. Corbay, Hero of Stoke Newington, and others. Mr. G. Stevens also staged some good specimens in this class. Pompons were not largely represented, but the chief prizewinner, Mr. F. Wells, gardener to W. A. Smea, Esq., The Limes, Woodberry Down, had neatly trained and well-flowered specimens. His premier collection of six comprised Mrs. Hutt, Cedo Nulli, Sœur Melanie, Prince Victor, Cendrillon, and Golden Cedo Nulli, dwarf-trained, even, and fresh. In this class Mr. Butcher was a close second, and Mr. G. Drain, South-

gate Nursery, De Beauvoir Town, N., a good third. Mr. Wells staged the two winning collections of four standards in the open (large-flowering varieties) and the borough classes (Pompons), the specimens of Bob, Antonius, and Prince of Wales being the most creditable.

Cut Blooms.—These, as stated above, were not so numerous as usual, the incurved varieties generally being rather small but neat. The Japanese were, however, of good quality in all the leading stands. The principal open class was that for twenty-four incurved blooms, in which the competition was very keen, eight collections being staged. Mr. E. Berry, The Gardens, Roehampton House, Roehampton, was adjudged chief honours for blooms of excellent form but not large. The best were John Salter, Antonelli, Barbara, Mr. Brunlees, Nil Desperandum, and Cherub. Mr. C. Sanderson, Harlesden House, Willesden, followed very closely, his stand including several blooms of fine substance. Prince Alfred, John Salter, Mrs. G. Rundle, and Mr. Brunlees were the most notable. Mr. G. Stevens took the third position, and Messrs. G. Garraway & Co., Clifton, Bristol, followed. The best twelve incurved blooms in the open section were staged by Mr. C. Gibson, The Gardens, Morden Park, near Mitcham, who easily secured the premier award with neat blooms. Baron Beust, Prince Alfred, Barbara, Cherub, Golden Empress, and Hero of Stoke Newington were among the best. In the open class for twenty-four Japanese blooms handsome examples were staged by several exhibitors. Mr. C. Gibson secured the premier award with even, fresh, bright blooms, similar to those in his stand at Kingston on the same day. Baronne de Prailly, Mons. Lemoine, Alba Striata, M. Ardene, Elaine, Red Dragon, Criterion, and M. Delaux were especially good. Mr. Herrin, gardener to J. N. Hibbert, Esq., Chalfont Park, Gerrard's Cross, was a close second, having some remarkably large blooms. Examples of The Daimio were 7 or 8 inches in diameter, and proportionately deep; Chang and Baronne de Prailly were also notable. Mr. H. Smith, gardener to Mrs. Anderson, Waverley Abbey, Farnham, was third, also with very creditable blooms, among them being fine specimens of Thunberg, Cry Kang, Red Gauntlet, Nuit d'Automne, Triomphe du Nord, and Madame Berthe Rendatler. Mr. G. Neal, gardener to B. Southby, Esq., Bampton, Oxfordshire, followed with fresh brightly coloured blooms, but a little wanting in substance. Anemone varieties were chiefly shown by Messrs. Berry and G. Neal, who carried off the principal prizes with blooms of moderate quality.

Fruit.—The classes most largely represented in this section were those for Apples and Pears, but black Grapes were also well shown, especially by J. Cooke, Esq. (manager, Mr. Stephen Castle), The Vineyard, West Lynn, King's Lynn, Norfolk; J. Ridout, gardener to T. B. Haywood, Esq., Reigate; and Mr. J. Bolton, who were first, second, and third respectively with well-coloured bunches of moderate size. The Norfolk examples of Gros Colman were particularly good, each of the others staging Black Alicante in fine condition. For six dishes of dessert Apples there were eleven competitors, Mr. R. Dean, Ealing, carrying off the first prize with even and fine fruits of Court Pendu Plat, Cox's Orange Pippin, Rymer's, King of Pippins, and Cornish Aromatic. Mr. Sidney Ford, gardener to W. G. Hubbard, Esq., Leonard's Lodge, Horsham, was second; and Mr. G. Goldsmith, Hollenden, Tonbridge, third, both staging good fruits. For six dishes of culinary Apples there were ten entries, Mr. H. Fowte, gardener to Sir H. Mildmay, Bart., Dogmersfield Park, Herts, winning first honours with Alfriston, Reinette de Canada, Blenheim Pippin, Bess Pool, and Hollandbury, very fine. Messrs. R. Dean and C. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, followed very closely. Pears were not so largely shown. Mr. Fowte, Mr. Goldsmith, and Mr. J. Stewart, gardener to H. J. Bennett, Esq., Langford Park, Essex, were the chief exhibitors and prizetakers.

Vegetables.—These were extremely well represented, the dozen entries in the class for the best collection of vegetables including some highly satisfactory and creditable specimens. Premier honours were deservedly accorded to Mr. R. Phillips, gardener to Captain Jackson, The Deodars, Meopham, Kent, who had remarkably well-grown examples of Carentan Leeks, Myatt's Ashleaf and Schoolmaster Potatoes, Snowball Turnips, Trophy Tomatoes, Drumhead Savoy, Veitch's Autumn Giant Cauliflower, and many others. Mr. J. Millen, The Gardens, Hamstead Park, Newbury, was second also with a satisfactory collection, but a little weak in a few points. Mr. J. Bolton, gardener to W. Spottiswoode, Esq., Coombe Bank, Sevenoaks, was third with clean and fresh but generally smaller specimens.

Potatoes were abundant, seven collections of twelve dishes and twelve of six dishes being staged. The best twelve was from Mr. R. Dean, and included Mr. Bresee, Bedford Prolific, Vicar of Laleham, Grampian, Wiltshire Snowflake, Bresee's Prolific, Matchless, Early Rose, Advancer, Red Emperor, Pride of America, and American Purple, all fine and even. Messrs. Millen and Ross followed in that order. Mr. Millen was the most successful with six dishes, taking first for neat samples of Suttons' Magnum Bonum, Beauty of Hebron, Schoolmaster, Vicar of Laleham, Late Rose, and Suttons' Fillbasket. Mr. C. W. Howard, Bridge, Canterbury, and Mr. R. Dean secured the remaining prizes.

Among the exhibits not in competition was a beautiful stand from Messrs. H. Cannell & Son, Swanley, which was as much admired by the general visitors as anything in the Exhibition. It comprised Primulas, very fine, particularly Swanley Red, exceedingly rich in colour; Salvias, S. Pitcheri being very fine; single and double Zonal Pelargoniums, and Chrysanthemums. Messrs. Sutton & Sons, Read-

ing, had large collections of Potatoes and Kales artistically arranged and representing a great number of varieties. Mr. Skinner Beresford, Brighton, exhibited about eighty dishes of handsome Apples, and Mr. J. Cooke had a basket of fine Gros Colman Grapes. All the above-mentioned exhibits were highly commended.

BRIXTON, STREATHAM, AND CLAPHAM.—NOVEMBER 17TH AND 18TH.

Among what may be termed the local metropolitan exhibitions of Chrysanthemums this has obtained a position of some importance, for specimen plants and blooms are usually of excellent quality, though not so numerous as at the shows of societies which include a more extensive area in their district. This year, however, the display was not quite so good as usual: not from want of general effectiveness nor from a less number of exhibits, but chiefly because the specimen Chrysanthemums were rather weak as compared with former shows of the Society. The well-grown specimens which Mr. W. Hall has hitherto shown with so large a share of success were particularly missed, and could ill be spared, though the productions of other growers gave promise of good results in the future.

Cut Blooms.—In the classes for incurved blooms the twenty-fours were represented by four very neat collections. Mr. A. Holmes, gardener to A. B. Hill, Esq., Clapham Park, was accorded the first position for clean, even, and compact blooms, Golden Empress of India, Mr. Brunlees, John Salter, Princess of Wales, Prince Alfred, and Lady Slade being the most noteworthy in the stand. Mr. J. Holmes, gardener to G. M. Storey, Esq., Nightingale Lane, followed with a less even collection, but including several especially large blooms, John Salter, Mrs. Heale, Baron Beust, and Prince Alfred being the finest. Mr. C. Livermore, gardener to Fred Webb, Esq., Christ Church Road, was third with smaller examples but of fair quality. The competition was remarkably brisk in the class for twelve incurved blooms, Mr. Holmes leading among the eight exhibitors with neat and fresh blooms, Prince Alfred, Sir Stafford Carey, Mr. Corbay, and White Beverley being noteworthy for their substance and form. Mr. T. Sadler, gardener to C. Lamber, Esq., Leigham Court Road, followed closely; and Mr. C. Livermore was third, also with a good collection. Several stands of six blooms were contributed, but mostly of rather inferior quality. Japanese varieties were fresh and bright, but not remarkable for their size and substance, except in a few instances. The best twenty-four was staged by Mr. J. Young, gardener to T. Hicks, Esq., Streatham Hill, who had good examples of Criterion, La Nympe, Striatum, Sarnia, Bronze Dragon, Chang, and L'Incomparable among many others of more or less merit. Mr. W. Clarke, gardener to J. Rains, Esq., Nightingale Lane, followed very closely, having Cossack, Baronne de Prailly, Curiosity, and Daimio in excellent form. Mr. A. Holmes was first with twelve Japanese, fresh and neat, Fanny Bouchardat and Madame C. Andiguer being the finest. Mr. J. Swain, gardener to Mrs. Wilson, Lower Tulse Hill, was second with smaller but very bright blooms. Good collections of Anemone varieties, both large and Pompons, were contributed by Messrs. Young, Livermore, J. Holmes, and Clarke, who were the chief prizetakers in the respective classes. For six blooms of any variety Mr. H. Holmes gained the premier award with extremely good bloom of Barbara, neat, substantial, even, and compact. Mr. W. Halliday, gardener to T. Olney, Esq., Balham Hill, followed with fair examples of Peter the Great; Mr. C. Salter, gardener to J. Southgate, Esq., Leigham Court Road, being third with John Salter, neat and of good colour. In the "maiden" class for twelve large incurved varieties the prizes were secured by Mr. Sadler and Mr. W. Powle, gardener to W. Swinscoe, Esq., Leigham Court Road, both showing fairly well.

Specimen Plants.—The principal class was that for six plants, large-flowered varieties, in which Mr. J. Weston, gardener to J. Martineau, Esq., Clapham Park, was awarded premier honours for specimens of moderate size but even and fairly well flowered. Cheruh, Mrs. G. Rundle, and Prince of Wales were especially good. Mr. E. Cherry, gardener to Mrs. Gahrick, Streatham, secured the second place with healthy but less even plants; Mr. J. Howes, gardener to Mrs. Bennett, Upper Tulse Hill, being third. Messrs. Weston, Howes, and Cherry were also the prizetakers with three large-flowered plants, the first collection including good examples of Mrs. Dixon, Mrs. G. Rundle, and Lady Hardinge. Pyramid Pompons were rather poor, but fairly good collections of three standards were shown by Messrs. Howes, Livermore, and J. Davy, the first having neat examples of Boh and Calliope, the second of La Sultaine and Lilac Cedo Nulli, and the third of White Cedo Nulli, all well flowered. In the "maiden" class for three plants, large-flowered varieties, Mr. J. Holmes and Mr. E. Yates, gardener to S. Lutwyche, Esq., Lower Tulse Hill, were first and second respectively with neat healthy specimens.

Miscellaneous Plants.—The exhibits in the classes for fine-foliage plants, Ferns, and Orchids added greatly to the attractiveness of the Exhibition. For six Ferns in 6-inch pots Mr. Young secured the first position with admirably grown little specimens of Adiantum farleyense, A. cuneatum, Gymnogramma chrysophylla, and G. Wettenthaliana. Mr. Fulbrook, gardener to Mrs. Hyatt, 5, Palace Road, was a close second, a pretty example of the distinct Asplenium Belangeri being noteworthy. Mr. H. Wright, gardener to H. Voss, Esq., Streatham, followed with fair plants. Another class was provided for larger Ferns—namely, four specimens in 11-inch pots. In this Mr. J. Young was again to the fore with excellent plants of Adiantum farleyense, Gymnogramma chrysophylla, Asplenium diversifolium, and Adiantum cuneatum. Mr. R. Austin, gardener to

K. Kesterton, Esq., Nightingale Lane, followed, showing Microlepia hirta cristata, Adiantum gracillimum, and A. farleyense very fine. Four fine-foliage plants were well shown by Mr. Fulbrook, who was placed first with healthy specimens, Dracaena Baptisti, D. Youngii, and Cocos Weddelliana being the best. Mr. H. Wright had smaller but well-coloured examples of Croton undulatum, Alocasia Lowii, and others. Stove and greenhouse plants were small, and not specially noteworthy; but Primulas were represented by several good collections, particularly those from Messrs. Young, Fulbrook, and W. Staplehurst, gardener to Mrs. Walmisley, Clapham Park, who were the chief prizetakers.

Orchids were highly creditable to the exhibitors, and an important feature in the display. The best six were from Mr. C. Salter, which included healthy well-flowered specimens of Cypripedium Harrisianum, C. venustum, Vanda carulea, Lælia præstans, and Masdevallia tovarensis. Mr. H. Wright had a good Oncidium Rogersi, and Mr. Weston staged a fine example of Houlletia fragrantissima, which had a handsome spike bearing fifteen of its curious reddish-brown spotted flowers that possess a powerful spice-like fragrance. Collections of four were contributed by Messrs. Salter, Young, and H. Wright in that order, the first including neat plants of Cypripedium Harrisianum, Odontoglossum grande, Oncidium crispum, and Dendrobium heterocarpum. The best of all was, however, the beautiful and tastefully arranged group from Mr. C. Salter, which included a number of handsome Orchids and Ferns. The Judges very deservedly awarded Mr. Salter a cultural commendation for the excellent condition marking his plants.

Fruit.—Grapes, though not largely shown, were good. Mr. W. Howe, gardener to Henry Tait, Esq., Streatham, had the best black Grapes, three well-finished bunches of Black Alicante; Mr. R. Holmes, gardener to T. Wallace, Esq., Clapham Common, was second with handsome bunches of the same variety, but not of such good flavour. Mr. J. Walls, gardener to F. Franks, Esq., Palace Road, was third with Black Hamburgh of fair size but slightly rubbed. White Grapes were not first-rate. There were seven entries in the class for three dishes of dessert Pears, Mr. W. Hall, gardener to W. Stevens, Esq., Lower Tulse Hill, carrying off the premier prize with good fruits, Forelle being noteworthy; Mr. W. Sandy, gardener to G. Coles, Esq., Leigham Court Road, and Mr. W. Collins were the other prizetakers. Apples were for the district remarkably good both in size and general appearance. Eight collections of culinary varieties and seven of dessert varieties were staged, the winners in the former being Messrs. G. Plumridge, gardener to Dr. Markham, Nightingale Lane; J. Holmes, and T. Foote. In the other class Messrs. H. Sandy, T. Foote, and G. T. Cocks, gardener to G. S. Cundell, Esq., Clapham Park, were the successful exhibitors.

The general arrangement of the Exhibition was as usual very satisfactory and creditable to the Secretary, Mr. W. Hall.

BRISTOL.—NOVEMBER 16TH AND 17TH.

Although this, the eighteenth annual Exhibition, in some respects was inferior to those of recent years, it was still a great success, and reflected much credit upon all concerned. The Victoria Rooms, Clifton, in which the Show was held, are well adapted for the purpose, and nothing but favourable weather was wanting to insure a substantial addition to the funds of this noted Society. The Committee and Mr. Webley, the courteous and energetic Honorary Secretary, ably managed affairs so as to have the judging completed and the hall open to the public at the appointed time.

Specimen Plants.—The premier prize, a handsome silver cup value £5 5s., was offered for six large-flowered specimen Chrysanthemums, but with the exception of the winning group staged by Mr. J. Brander, nurseryman, &c., failed to attract anything above mediocrity. Mr. Brander's specimens were flat and formal, about 3 feet 9 inches across, and carrying on an average about ninety fine blooms. The varieties were Mrs. Forsyth, Mrs. Dixon, Prince of Wales, Mr. Corbay, Mrs. G. Rundle, and Alma. The second-prize group staged by Mr. H. Smith, gardener to A. Shipley, Esq., were less formerly trained, and the specimens of Venus, Prince of Wales, and Mrs. Dixon were very creditable. Mr. Brander was first with three varieties, staging in this instance good specimens of Guernsey Nugget, White Globe, and Bronze Jardin des Plantes. Mr. H. Smith was a good second. The four best Pompons were staged by Mr. Brander, and consisted of Antonius, Bob, Marie Stuart, and Golden Circle. Mr. E. T. Hill, gardener to T. Pease, Esq., followed with untrained specimens, which, however, presented the appearance of having been starved at some period of growth, but they were welcomed as a step in the right direction. Two well-flowered flat-trained specimens of The Cossack and Fair Maid of Guernsey, staged by Mr. E. S. Cole, gardener to W. Pettrick, Esq., gained the first prize in the class for Japanese varieties; Mr. W. Terry, gardener to H. C. Miles, Esq., following with two standards. Mr. E. S. Cole staged the best pyramid variety, Mrs. Rundle; Mr. Monkley following with Venus. There were also other classes for Pompons and Anemone-flowered. The closest competition, however, was for special prizes offered for three standard Chrysanthemums. Mr. H. Smith was placed first for admirably grown specimens of Venus, Mrs. Rundle, and Guernsey Nugget; Mr. Brander and Mr. E. T. Hill following closely in the order named.

Cut Blooms.—Of these several excellent stands in each class were staged, some of the blooms being remarkably fine. This may be said of all the first prize twenty-four large-flowered varieties staged by

Mr. J. Baylis, Winterbourne, and consisting of Princess of Wales, Cherub, Mrs. Heale, Prince Alfred, Gloria Mundi, White Globe, Barbara, Golden Queen of England, Plutus, Prince of Wales, Jardin des Plantes, Beverley, Rev. C. Boyce, Bronze Jardin des Plantes, Golden Beverley, Mrs. Brunlees, Lady Hardinge, Abbé Passaglia, Princess of Teck, Mr. W. Shipman, George Glenny, Princess Beatrice, Mrs. Rundle, and Guernsey Nugget. The most noteworthy blooms in Mr. T. Hobbs' second-prize collections were those of White Beverley, Hero of Stoke Newington, Prince of Teck, Isabella Bott, Princess of Wales, and G. Glenny. Messrs. Garraway were awarded the third prize for generally good blooms. Mr. H. Morgan was placed first in the amateurs' class for twelve blooms, staging among others good examples of Princess of Wales, Cherub, Beverley, Golden Beverley, Prince Alfred, Golden Empress of India, and Princess Beatrice. Mr. J. Waite was a good second, his most noteworthy blooms being of Barbara, Eve, and Princess of Wales. The best six large-flowered varieties were staged by Mr. J. Baylis, Mr. J. Waite following, both staging well-known old varieties. Mr. Baylis was again first with twelve Anemone-flowered in not less than six varieties, staging beautiful examples of Lady Margaret, Empress, Georges Sand, Gluck, Louis Bonamy, and Acquisition. Messrs. Garraway's second-prize collection included good blooms of Fleur de Marie, Prince of Anemones, and Acquisition. Mr. T. Hobbs was awarded the third prize. Special prizes were offered for twelve incurved blooms in two colours. Mr. Baylis easily obtained premier position with immense solid blooms of Princess of Wales and Barbara. The Japanese varieties staged in competition for special prizes were much admired, notably those staged by Messrs. Garraway and Mr. Baylis. The former's stand comprised many newer varieties, and consisted of Baronne de Prailly, Sarnia, Ethel, Fulgor, Madame C. Andignier, Peter the Great, Red Gauntlet, Hiver Fleur, Nuit d'Hiver, Bronze Dragon, and Fair Maid of Guernsey.

Miscellaneous Plants.—The first prize for a limited group was awarded to Mr. W. Perry, gardener to H. C. Miles, Esq., the second to Messrs. Maule & Sons, both arranged tastefully, the former winning perhaps on account of great number of Orchids included in his group. Mr. W. Rye, gardener to J. Derham, Esq., Mr. W. Perry, and Mr. Bush in the order named were the winners in the classes for fine-foliaged plants; and the best Ferns were staged by Mr. W. Bannister, gardener to H. St. V. Ames, Esq., and Mr. Perry, the collections in each instance comprising several highly creditable specimens. A well-flowered specimen of *Oncidium macranthum*, staged by Mr. Perry, won the first prize in the class for a single specimen stove or greenhouse plant in flower; the second prize going to Mr. O'Brien, gardener to Mrs. R. King, for a large beautifully flowered *Clerodendron Balfourianum*. Eight exhibitors competed for the prizes offered for six Chinese Primulas, all staging creditably; Mr. Bannister's first-prize group being exceptionally good. Mr. E. S. Cole and Mr. W. Fox secured the remaining prizes. Mr. H. Ward, gardener to W. H. Budgett, Esq., staged the best six berried plants, these consisting of creditable examples of *Solanum Capsicastrum*, *Aucuba*, and *Capsicums* in two colours. Mr. H. Spry, gardener to G. F. Prideaux, Esq., and Mr. Rye also exhibited well in this class, and received the remaining prizes. The first-prize group of *Celosia pyramidalis* were exceptionally good both as regards culture and the quality of strain. These were staged by Mr. J. H. Vallance, gardener to J. C. Wall, Esq., Mr. W. Bannister following with creditable plants. Poinsettias were not very good. The best were staged by Mr. E. T. Hill; Mr. G. Skelton, gardener to W. K. Wait, Esq., following closely. Zonal Pelargoniums were remarkably well shown by Mr. C. Taggett in the two classes devoted to them, and Messrs. Vallance and Rye were the successful exhibitors of *Bouvardias*.

Fruit.—This constituted a great feature in the Exhibition, the various classes being well filled, and the quality generally being remarkably good. The best collection of six varieties of dessert fruit was staged by Mr. J. H. Vallance, and consisted of good Lady Downe's and Black Alicante, a poor fruit of Victory of Bath Melon, good King of the Pippins Apple, Alexandre Lambre Pears, and Medlars. Mr. Bannister took the second prize, and was closely followed by Mr. G. Hawkes, gardener to Col. Tuberville. The latter exhibitor spoilt his otherwise good collection by staging over-ripe Pears. Mr. G. Farmer, gardener to S. Derham, Esq., had the best Black Hamburgh Grapes, and Mr. W. Bannister the best Muscat of Alexandria. The competition was very close with four bunches of Grapes in two varieties. Mr. G. Avery, gardener to J. B. Low, Esq., staged good examples of Gros Colman and Black Alicante, and these were rightly preferred by the Judges to well-coloured examples of Lady Downe's and Muscat of Alexandria staged by Mr. W. Bannister, owing to the Muscats having a few shanked berries. Mr. J. Gibson was awarded the third prize for large but imperfectly coloured bunches of Gros Colman and Mrs. Pince. Three good bunches of Lady Downe's won Mr. J. H. Vallance the first prize for any black Grapes, Mr. G. Shelton following with creditable examples of Black Alicante. There were nine collections of six varieties of Pears staged. Mr. G. Farmer was first with excellent dishes of Durandean, Beurré Bachelier, Duchesse d'Angoulême, General Todleben, Josephine de Malines, and Beurré Clairgeau. Mr. Rye was a good second, and Mr. W. Bannister followed. Mr. G. Farmer was again first for four varieties. Mr. E. T. Hill was second, eleven collections being staged. The same number exhibited six varieties of dessert Apples, and the prizes were awarded to Mr. J. H. Virgo, Mr. J. Aplin, and Mr. Ban-

nister in the order named. Mr. Virgo's collection consisted of fair-sized highly coloured examples of Blenheim Orange, Ribston Pippin, Kentish Pippin, Court Pendu Plat, Colston Pippin, and King of Pippins. There were twelve collections of four varieties of dessert Apples staged, Messrs. Vallance, J. Aplin, and W. Bannister receiving the awards in the order named, Mr. Aplin also winning with one dish with remarkably fine fruit of Blenheim Orange; Mr. J. Helper, gardener to G. Pope, Esq., following with equally creditable examples of Neison's Glory, better known as Warner's King, and Mr. H. Ward was third with fine Blenheim Orange.

Vegetables.—Collections of nine varieties arranged in baskets were well shown by several exhibitors. The Judges eventually awarded the first prize to Mr. E. T. Hill, Messrs. G. Avery and W. Bannister following very closely. The last-named spoilt an otherwise excellent collection by a mixed arrangement. Beet, Potatoes, and Turnips were shown much too coarse throughout. A valuable telescope offered as a special prize for a collection of winter salad was won by Mr. J. H. Vallance, an extra prize being awarded to Mr. A. Morse, both exhibitors staging particularly good produce.

Bouquets, with the exception of that staged by Mr. E. C. Cole, and awarded the first prize, were much too flat and crowded. Messrs. Ward and J. Loosemore were the other successful exhibitors. Buttonhole bouquets were of average merit, but the baskets and vases filled with autumn foliage and berries were extremely beautiful both by daylight and gaslight, and added much to the general effect. Mr. J. Aplin, Miss L. Wethered, and Mr. Monkley were the prizewinners for best-arranged baskets, and Mr. J. H. Virgo and Mr. J. Brander with vases.

The gold medal for a collection of fruit won at the great Manchester Show by the Bristol Chrysanthemum Society, and of which they have good reason to be proud, was exhibited, and attracted much attention. Messrs. Parker & Sons, Garraway & Sons, and T. Busb, nurseryman, Bristol, contributed groups of well-grown plants, which added considerably to the general effect. The Royal Horticultural Society's Silver Knightian Medal for the best collection of six dishes of dessert fruits was won by Mr. Vallance, and the Bronze Knightian Medal was secured by Mr. H. Smith for the best specimen Chrysanthemum in any class.

CANTERBURY.

The fourth Exhibition of Chrysanthemums, fruit, and vegetables was held by the Gardeners' Mutual Improvement Society at the Foresters' Hall, Canterbury, on the 16th and 17th of November. The Show this year quite surpassed all previous exhibitions of the Society both in the quality and number of the exhibits. The room was rather too small, but the arrangements were excellent, and reflect great credit on the managers.

Specimen Plants.—Near the entrance to the room were groups of plants arranged for effect, the first prize being taken by Mr. Woodcock, gardener to F. Flint, Esq. Mr. Martin, gardener to T. G. Peckham, Esq., was second; and Mr. Edwards was third. The too frequent fault of overcrowding was observable, but the effect was generally very good, and a great improvement upon that of last year. On each side of the room and at the end were fruit and vegetables, while in the centre were staged pyramid and standard Chrysanthemums, flanked on either side by trained and untrained plants of smaller size. For trained plants Mr. Martin was easily first, his pyramids being one mass of bloom; Peter the Great, George Glenny, and Mdle. Marthe being especially well flowered. Mr. Hawkins, gardener to W. P. Sims, Esq., showed good plants, but not equal in size or bloom to the former. The other successful exhibitors in the pot classes were Mr. Woodcock, Mr. Elvey, gardener to Major W. Plummer, and Mr. Maple, gardener to Mrs. Halbed.

Cut Blooms.—In the classes for cut blooms Mr. Woodcock was the most successful exhibitor. The open class for twenty-four varieties (incurved and reflexed) caused a keen competition, Mr. Woodcock being first with fresh and well-finished blooms; Princess of Wales, John Salter, Prince of Wales, Mrs. Dixon, Mrs. G. Rundle, George Glenny, and Eve being especially good. The second prize was taken by Mr. Martin, whose flowers were large but rather over-bloomed; Empress of India, Jardin des Plantes, Guernsey Nugget, George Glenny, and Barbara being amongst the best. Mr. Maxted, gardener to the Marquis of Ely, was third, his most noticeable flowers being George Glenny, Ensign, and Nil Desperandum. In the Society's class for twenty-four Mr. Woodcock was again first with good blooms of Princess of Wales, Lady Talfourd, Triomphe de Nord, and Mrs. George Rundle. Mr. Martin was a close second, showing Barbara, Beethoven, and George Glenny in fine condition, Mr. Sudds, gardener to S. Wildash, Esq., was third. For twelve varieties the same order of names was preserved. Perhaps the most beautiful flowers in the Show were the Japanese varieties, in which class Mr. Martin was first with grand blooms of Red Dragon, Peter the Great, Bronze Dragon, Hiver Fleur, James Salter, and Red Dragon; Mr. Woodcock was second. For six varieties of Japanese, for Pompons and Anemones, Mr. Woodcock was again first, the other prizetakers being Mr. Martin, Mr. Elvey, Mr. Maple, and Mr. Sudds.

The hard fruit, as might be expected from the neighbourhood, was of good quality, and indeed throughout the whole Show there was scarcely a single exhibit of an inferior kind. Grapes, however, with the exception of a beautifully coloured bunch of Lady Downe's Seedling, exhibited by Mr. Woodcock, were not good. The chief prizetakers for fruit were Mr. Russell, gardener to the Dean of Canter-

bury; Mr. Murphy, gardener to Col. Laurie; Mr. Woodcock, Mr. Martin, and Mr. Sudds. The vegetables were generally very good; Potatoes, contrary to expectation, being shown in fine condition.

In the amateurs' classes for flowers the chief prize was taken by Mr. Noble, who had in his twelve one of the best specimens (Eve) of Chrysanthemums in the whole Exhibition. Mr. Featherston, Mr. George, Mr. Phillpot, Mr. Kennett, and Mr. Nash also showed successfully and well.

Cottagers' classes are always interesting, showing as they do to what excellence a true lover of horticulture of slender resources may arrive. All the classes were well contested, but Mr. Coachworth was easily before other competitors, and his exhibits were most creditable. Messrs. W. Gill, R. Hopkins, and S. Bishop were the other chief prize-takers.

In the ladies' class there was room for improvement, as in none of the epergnes was there very great taste displayed. Mrs. Noble took the first prize, Miss Payne Smith being second, and Miss Hammond third. In the special prizes Mr. Murphy was first with a magnificent collection of vegetables. Mr. Woodcock was second, also showing well, closely followed by Mr. Kennett, who was third.

In the class for a dish of boiled Potatoes the growers seemed to be more scientific than the cooks, but English cooks are not generally successful in Potato-boiling. Mr. Martin showed an interesting plant with ninety-eight grafts of thirty-four varieties, while one of the features of the Show was a huge Vegetable Marrow shown by Mr. S. Leggett, which weighed 43 lbs.

Altogether the Exhibition was a great success, and it is to be hoped that it will be followed by others of increasing excellence.

TUNBRIDGE WELLS.—NOVEMBER 17TH AND 18TH.

This Show was held in the Skating Rink, a capacious lofty hall admirably adapted for the purpose. Bright, warm, sunny weather attracted a crowded attendance to a pretty Exhibition; for although the competition was not keen, yet all the classes were fairly well filled with exhibits that were generally meritorious, and in some instances of considerable excellence. Enough Chrysanthemum plants were brought together to form a bank round the sides of the hall, additional height being happily imparted to the end farthest from the entrance by a back row of pyramids; cut flowers, table plants, and fruit filling two parallel long tables down the centre. The effect of this arrangement as a whole was excellent, forming a bright well-balanced picture, and affording six distinct sides for inspection, so that the constantly increasing stream of visitors was sufficiently broken to prevent overcrowding at any point.

Specimen Plants.—The finest group of plants was that of eight specimen Chrysanthemums, with which Mr. J. Adams, gardener to T. Grant, Esq., won the tradesmen's silver cup. It consisted of a very fine dwarf Mons. C. Hubert, and almost equally large plants of Mr. G. Glenny, Dr. Sharpe, Golden George Glenny, Mrs. G. Rundle, and Antonini, with a well-matched pair of pyramids of Fanny and Calliope. Mr. F. Earley, gardener to G. A. Brittain, Esq., Ferndale House, was second with good plants somewhat overtrained, and Mr. J. Overden, third. For the ladies' silver cup, a prize of equal value and importance, Mr. R. Beilby, gardener to W. H. Tindall, Esq., was first with a good group, the best plants being Peter the Great, a handsome compact plant of the bright-hued Dr. Sharpe with very fine flowers; a capital Mrs. G. Rundle, and Golden George Glenny. In the second-prize group by Mr. W. Berwick, the most prominent place was worthily filled by a fine specimen of the lovely white-flowered Elaine; and Mr. J. Williams' equally fine example in the third-prize group of Mrs. Forsyth with large handsome white flowers was equally worthy of notice. Some of the single specimens were very good, notably Mr. Beilby's first-prize plant of Mrs. G. Rundle with exceptionally fine flowers. Mr. J. Adams was a very close second with a Golden George Glenny, so good that the Judges must have had some difficulty in coming to a decision. In another class Mr. J. Allan, gardener to G. Hanbury Field, Esq., Ashurst Park, had a particularly fine example of Mrs. Dixon, with almost every one of its bright yellow flowers perfect in size and form. Excellent plants, either winners of prizes singly or in groups, were also shown of Mrs. Haliburton with fine full flowers, by Mr. Beilby; Venus, a charming light-tinted lilac-coloured Pompon in a first-prize group of pyramids, by Mr. Earley; a Cedo Nulli with hundreds of its lovely little white flowers suffused with pink—a magnificent plant, probably the largest and best plant in the Show. Of the dark-flowered Pompon Fanny by Mr. J. Adams, to which a first prize was well awarded, three groups of standards were shown, all of them having the objectionable characteristics of stiff gaunt formality. The pretty miniature yellow flowers of Mignonette were noteworthy—so pretty that it deserves more general culture, and in the more pleasing guise of dwarf, bush, or pyramid.

Cut Flowers.—Forty-four stands were shown, many of them containing excellent blooms. The most conspicuous were Mr. J. Allan's first-prize stand of six Japanese with magnificent examples of Oracle, Baronne de Prailly, Apollo, Yellow Dragon, Elaine, and Soleil Levant, a very fine yellow. The same exhibitor was also first with six large-flowered incurved varieties all so good as to merit enumeration: they were Princess of Wales, Golden Empress of India, Mr. G. Glenny, R. J. Dix, Isabella Bott, and Barbara, an attractive orange brown. Mr. J. Roberts was also first in the amateurs' division with grand blooms of the Japanese Peter the Great, delicate yellow; Creole, deep

lilac; Elaine, white; Plantagenet, rich yellow; James Salter, delicate lilac; and Meg Merrilees, yellowish white.

Miscellaneous Plants.—Primulas made a fine display, all the plants being well grown and profusely flowered, especially those of Mr. G. Tickner, gardener to H. Hewetson, Esq., the first prize in each of the three classes. Of plants for table decoration Mr. J. Wilkins, although placed third, had by far the most useful group, consisting of clean, healthy, medium-sized plants of Pandanus Veitchii, a pair of Cocos Weddelliana, Dracaena terminalis, and D. Guilfoylei. Epiphyllums were very good, especially the first-prize group from Mr. T. Maynard, gardener to Mrs. Hindley, Broadwater, Down. There were several groups of the showy Poinsettia, all of them much drawn up except the useful dwarf plant of Mr. J. Charlton, to which the first prize was awarded. Many useful well-flowered examples of Celosias, also fine Poinsettias, were shown, and constituted, in the opinion of many, one of the best features of the Show.

Fruit.—The classes for Pears and Apples were so well filled that an excellent display of well-grown fruit was brought together. Names were attached to the different varieties, but we noticed faulty nomenclature in several instances. Of the three collections of fruit shown Mr. A. Bashford was first with a handsome Queen Pine, a Berwick Perfection Melon; good Black Alicante and Lady Downe's Grapes; Blenheim Pippin, Gloria Mundi, Golden Knob, and Cox's Orange Pippin Apples; Beurré Hardy, Beurré Superfin, and Uvedale's St. Germain Pears. The same exhibitor was also first with three excellent bunches of Muscat of Alexandria Grapes and equally fine Black Alicante.

DARTFORD.—NOVEMBER 16TH AND 17TH.

This ably managed and successful Society held its eleventh annual display in the large Assembly Rooms, Dartford, on Wednesday and Thursday last week. The plants exhibited perhaps did not evince that high-class culture and superiority of bloom that may be met with nearer the metropolis, or as we have seen here on former occasion; still they were for the most part most profusely flowered, while the cut flowers were fully up to the average, and creditable to the cultivators in the district. Several of the Japanese forms were exhibited as untrained specimens, and well adapted they are for the purpose. Especially fine were James Salter, M. Crousse, Bouquet Fait, Gloire de Toulouse, M. Delaux, and Rosa Bonheur, exhibited by Mr. Dancer, gardener to S. Mart, Esq., Sutton House. This successful exhibitor obtained the majority of first prizes in all the plant classes. Mr. E. Ryder, gardener to E. F. Satterthwaite, Esq., Kingsfield, and Mr. H. Preddy, gardener to J. Hyland, Esq., Bank House, Dartford, also showed well, and in some cases ran Mr. Dancer rather close. The greatest interest in the Show was probably centred in the open class for twenty-four incurved blooms, distinct, for which there was an elegant silver cup offered, with a second prize of £3, third of £2, and fourth £1. The winner of the first prize, Mr. Martin, gardener to C. N. Kidd, Esq., West Hill House, Dartford, staged a most excellent collection, and was far ahead of the other competitors. His collection consisted of Princess of Wales, grand; John Salter, Mrs. Heale, St. Patrick, White Globe, Mr. Bunn, Lady Hardinge, Isabella Bott, Queen of England, Antonelli, Prince of Wales, Cherub, Eve, Baron Beust, General Bainbrigge, Lady Talfourd, Refulgence, Mrs. Dixon, Mr. G. Glenny, Mr. Gladstone, Mabel Ward (this is a golden amber sport of Eve), Hero of Stoke Newington, Mrs. G. Rundle, and Anglin. The second, third, and fourth collections were much closer in quality, some of the blooms in each stand having passed their best, but the awards eventually fell to Mr. G. Pendred, gardener to S. C. Unfreville, Esq., Ingress Abbey; Mr. T. Dancer, and Mr. A. Harber in the order of their names. Mr. Martin also secured first prizes in the classes for twelve and six cut blooms, distinct, with blooms scarcely inferior to the prize-cup lot, and in each stand set up a bloom of Mabel Ward, which we venture to predict will be a splendid addition to our incurved varieties.

There was a very great improvement in the size and character of the Japanese flowers exhibited. Some really grand blooms were staged by Messrs. Etherington, Dancer, Pendred, and Martin, who secured most of the prizes. Rosa Bonheur and Revière were especially good.

Fruit, miscellaneous plants, as well as table plants, all added to the interest of the Exhibition, and great credit is due to the energy of Mr. W. Shelton the Secretary, Mr. Cliffe the Treasurer, and Mr. Evitt the Chairman of the Society, on whom the arrangements of the Exhibition principally devolved.

SOUTHAMPTON.—NOVEMBER 22ND.

Autumn shows are so numerous consequent on the necessarily short period of the Chrysanthemum season, that the exhibitions can only have brief notice, especially those that occur on the eve of our going to press. The Royal Horticultural Society's Show under notice was, on the whole, an excellent one, and, the day being fine, it was attended by crowds of visitors, which included all the leading families of the town and neighbourhood. The plants were less formally trained than is customary in some districts, and those that secured the premier awards were good. The winning stands of cut blooms contained many excellent flowers, but, on the other hand, many were small and had lost their freshness, the best blooms having faded. Fruit was of superior quality, and vegetables were of the highest merit.

Glancing at the classes, the first prize for a group of Chrysanthemums was well won by Mr. Allen, gardener to J. Bailey, Esq., Elmfield Hill, with an imposing arrangement, the majority of the plants bearing fine exhibition blooms. Mr. Osborne, gardener to H. J. Buchan, Esq., followed with an arrangement made bright with a number of Japanese varieties. For twelve plants Mr. Allen was again in the premier position with specimens $2\frac{1}{2}$ by $2\frac{1}{2}$ feet, not formally trained and flattened. Very effective were the Japanese varieties—Fulton, The Cossack, Mr. Barnes, and La Nympe. Mr. Wills, gardener to Mrs. Pearse, The Firs, Basnett, was second with rather smaller examples, King of Crimson being especially striking. For six plants the prizes went to Mr. Thomas, gardener to R. R. Scott, Esq., Shirley, and Mr. Osborne. Mr. Allen was first for four Japanese, also for a specimen plant, with an excellent example of Arlequin; Mr. Wills following with Fulgore. In the corresponding class for incurved or reflexed varieties the competition was close between Messrs. Osborne and Allen, the former winning with a symmetrical example of Golden Christine; Mr. Allen staging a vigorous and striking plant of King of Crimson. Mr. Wills and Mr. Axford, gardener to C. Shipley, Esq., Twyford Moors, Winchester, also secured prizes in the above classes. In the amateurs' class for six plants Captain Gibbs was placed first with fresh creditable examples, followed by Mr. Betteridge, Old Bassett.

In the cut-flower classes the prizes for twenty-four blooms, distinct, were won by Mr. Molyneux, gardener to W. H. Myers, Esq., Swanmore Park, Bishop's Waltham; Mr. Wills; Mr. Shirley, gardener to Lord Mount Temple, Broadlands, Romsey; and Mr. McMillan, gardener to Hans Sloane Stanley, Esq., Paultons, Romsey. For the same number of blooms, in not less than eighteen varieties, the prizes went to Messrs. Allen, Molyneux, and Wills. The two last-named exhibitors are evidently first-class cultivators, as was indicated by many fine blooms, which, however, we cannot enumerate. For twelve blooms Mr. Molyneux was clearly ahead of the other successful competitors—Messrs. Wills; Pope, gardener to G. Atherley, Esq., Bishop's Waltham; and Mr. Chapman, gardener to W. Tasker, Esq., Manor House, Clatford, all of whom exhibited well. For twelve Japanese, distinct, the prizes went respectively to Messrs. Allen, Molyneux, and Pope, the competition being very close indeed; and for twelve in nine varieties, to Messrs. Pope, Chapman, and Axford. In the amateurs' class for twelve blooms Mr. Betteridge and Captain Gibbs obtained the honours.

Groups of stove and greenhouse plants were too formal, Messrs. McMillan and Wills securing the chief prizes. In the nurserymen's class we can only say of Messrs. Ransom's winning group that it contained good plants spoiled by close packing. Table plants were remarkably good, especially from the prizewinners—Messrs. Wills, Budd, and Philp. Messrs. Wills and McMillan had the best Poinsettias, good; Mr. Thomas the best Solanums, good also; Mr. Allen the best single, and Mr. Blackmore, Winchester, the best double Primulas. Good Palms were staged, but we could not see the names of the exhibitors; but by far the most beautiful and valuable group of plants in the classes were Dr. Buchan's Orchids. For healthy growth, fine flowers, and choice varieties these were of conspicuous merit, and the owner is to be congratulated on possessing such a collection, and his gardener, Mr. Osborne, complimented for growing the plants so well. Nor must we forget Mr. Cannell's splendid collection of Primulas—Swanley Red eclipsing all others—and Zonal Pelargoniums. A certificate of merit was awarded for this truly admirable display.

Fruit.—Seventeen collections were staged in the class for three varieties of Grapes. Mr. Hall, gardener to Captain Davison, South Stoneham House, being placed first with Gros Guillaume, splendid berries, Alicante, and Muscat of Alexandria, both very good. Mr. Austen, gardener to Sir Greville Smythe, Bart., Ashton Court, Bristol, was second, Mrs. Pince being fine and excellently coloured. Mr. Budd, gardener to J. C. Dalgetty, Esq., Lockerby Hall, Romsey, third, Gros Colman being good; and Mr. Wildsmith, Heckfield, fourth with smaller bunches but fine berries. For three bunches of black Grapes Mr. Hall was first with superb Alicantes; Mr. Austen second with the same variety; and Mr. Smith, gardener to J. H. Foord, Esq., Botley, third with Gros Guillaume, both staging well. For single bunches the prizes went to Messrs. Budd, Osborne, and Sbarp, gardener to Rev. W. G. Medlicott, Swanmore Vicarage, Bishop's Waltham, the two former staging Alicante, the latter Black Hamburgh, all good. The winners with Muscats were Messrs. Smith, Wildsmith, and Sanders, gardener to J. East, Esq., Longstock House, Stockbridge, all exhibiting well. Three very good Pines were staged: First, Mr. Browning, gardener to F. Holloway, Esq., Marchwood Park, with a Queen; second, Mr. Wildsmith with Charlotte Rothschild; third, Mr. Austen with Smooth Cayenne.

Of Apples and Pears the display was splendid. In the class of four dishes of each there were seventeen competitors, Mr. Wildsmith winning first honours. We cannot name the varieties, but must say Spring Beurré Pear was grand; Mr. Mair, gardener to General Calthorpe, Woodlands Vale, Ryde, was second; and Mr. Wills third. For three dishes of dessert Apples Messrs. Girford, Rowhams: Pragnell, Arduave, Bassett; and Wildsmith were the successful exhibitors, seventy-five dishes being staged. For three dishes of kitchen Apples Messrs. Hall, Wildsmith, and Chapman. Mr. Wildsmith was first with three dishes of Pears. Numbers of exhibitors who failed to obtain prizes exhibited admirably in the above excellent classes.

Vegetables were as good as the fruit. Mr. Austen was first for eight varieties with a superb collection, ten lots staged; and Mr. Sanders for salads, an excellent assortment; while Mr. Guillaume and Capt. Gibbs were successful in the amateurs' classes. Mr. Wildsmith won the handsome framed certificate for the greatest number of prizes in the fruit classes, and Mr. Allen the corresponding honour in the Chrysanthemum classes. The prizes offered by Mr. B. S. Williams for the greatest number of points obtained in the Show was not determined when we left the Exhibition. Major-General Lacey, Captain Gibbs, and other members of the Committee, with Mr. Fudge the Secretary, rendered most efficient services in making the Show what it undoubtedly was, a success, and we never saw the business of an exhibition conducted in a more workmanlike, smooth, and satisfactory manner.

MANCHESTER.—NOVEMBER 22ND.

The Royal Botanical and Horticultural Society's Show held in the Town Hall proved, as far as the exhibits were concerned, a great success; indeed, it was pronounced the best autumn Show the Society has had, but the plants and cut blooms of Chrysanthemums were much behind those grown in some other localities, the superiority of Mr. Young's blooms being at once noticeable. The Primulas and Cyclamens were extra fine, and not seen in better condition at any exhibition in the kingdom. In the class for eight Chrysanthemums, large-flowered, in pots, distinct varieties, the plants were not trained but staked upright, and were carrying eight or nine blooms each. The blooms individually were good. Mr. W. Cush, gardener to C. Agnew, Esq., Prestwick, took the lead; Mr. W. Taylor, gardener to E. C. Potter, Esq., Rusholme House, second; and Mr. F. Glover, gardener to T. Woodhead, Esq., Old Trafford, a good third. In the class for four varieties, large-flowered, Mr. W. Taylor obtained the premier award with good plants, Mr. W. Cush being second, and Mr. Glover third. The Pompon varieties were not numerous, and the plants were staked in the same manner as the large-flowered varieties. The first prize in the class for six kinds was awarded to Mr. Crinestone, gardener to T. Diggles, Esq., Brookfield. Mr. Cush was first in the class for one large-flowered variety, showing Elaine; the same exhibitor being first in the class for one Pompon, and Mr. Crinestone second. Primulas throughout the Exhibition were in grand condition; in fact, much finer than generally met with. In the class for six plants Mr. George Kerten, gardener to John Allen, Esq., Oldfield House, took the lead with well-flowered plants; the second being obtained by T. G. S. Garnett, Esq., Bolton, with smaller but well flowered examples, the flowers being large and the strain good; the third going to Mr. H. Ellis, gardener to W. Agnew, Esq., Pendleton. An equal first prize was awarded Mr. H. W. Gibson, gardener to S. Hazzopulo, Esq., for double white Primulas, the best we have ever seen staged.

Cut Flowers.—In the class for twenty-four cut blooms of large-flowered Chrysanthemums, distinct, Mr. Charles Young, gardener to Joseph Evans, Esq., Hurst House, Liverpool, took the lead with blooms far ahead of any others staged; the second prize being taken by Mr. G. Kerten, who staged both incurved Japanese and Anemone flowers in his box. W. Warrington, gardener to W. Blades, Esq., Lymm, was third. In the corresponding class for twelve blooms Mr. Young was again a long way first, his blooms being bright, fresh, and good. In the class for twenty-four blooms, including Anemone, Japanese, and Pompon varieties, Mr. Young again took the lead, showing well. Mr. C. Pritchard, gardener to J. Ryder Esq., Didsbury, was second. In the class for the best arranged vase suitable for a dinner table Mr. W. Plant obtained the premier award with a massive vase of choice flowers, and suitable for a very large table. Mr. H. Ellis was a good second with a light, elegant, and tastefully arranged vase.

Miscellaneous Exhibits.—Messrs. Dixon, Brown, & Tait, Manchester, exhibited a fine group of Solanums and Cyclamen. The former were remarkably well berried; the latter being in 8-inch pots, and the plants remarkable both for size and bloom. A first-class certificate was awarded. Mr. John Hooley, Edgelly Road, Stockport, also staged a fine assortment of small-flowering and foliage plants, the former largely predominating, a first-class commendation being awarded. Messrs. W. Clibran & Sons, Altringham, staged a very large collection of similar plants, amongst them being quantities of Chrysanthemums, principally Pompon varieties, both trained and untrained, the large bushy plants of Mignonette being a feature, and were remarkably fine; the double Primulas in this collection were also good. This collection was also awarded a first-class commendation. Mr. John Gibson also exhibited a beautiful group of Primulas intermixed with Poinsettias and a few Roman Hyacinths, for which the Society's silver medal was awarded. Messrs. H. Cannell & Sons, Swanley, Kent, staged a fine box of cut blooms of single Pelargoniums and one of double varieties. The box of Salvias were really magnificent, S. Pitcheri and S. rutilans being intermixed. The Primulas were very fine indeed, and a first-class certificate was awarded for them. A first-class cultural certificate was awarded to Mr. G. Masters, gardener to Colonel Leigh, for a tray of Tomatoes. A similar acknowledgement was awarded to G. F. Smith, Esq., for four bunches of Black Alicante Grapes. Messrs. G. & W. Yates, Manchester, staged a choice assortment of miscellaneous plants in remarkably good condition. Mr. Swan, Fallowfield, staged a small plant of *Odontoglossum nevadense* in

flower. Mr. James Hill, gardener to George Hardy, Esq., Timperley, staged a fine *Odontoglossum* unnamed, but supposed to be *O. Chester-tonianum*. The spike had fifteen flowers upon it, pure white, of good size, and blotched with large purple spots, the side petals being pure white. The markings are extraordinary and beautiful. Messrs. Cole and Son, Withington, showed *Ixora Duffi* in grand condition; the trusses were large and most brilliant in colour. It will be remembered that Messrs. Veitch & Sons sent it out about two years ago. The foliage was fully 9 inches long and 4 inches in width, and the flowers extremely bright.

Mr. Bruce Findlay is to be congratulated for the success of the Show.



KITCHEN GARDEN.

Forcing Department.—For Asparagus, pits are necessary capable of holding sufficient fermenting materials to maintain for a considerable time a bottom heat of 70° to 80°, with hot-water pipes sufficient to secure a top heat of 55° to 65°. The lights should be moveable, so that at suitable times an abundant supply of fresh air can be afforded, as without this the heads will be poor in flavour. In order to obtain a supply of heads at Christmas a bed should now be formed of three parts leaves to one of stable litter, well incorporating them, and treading the bed down firmly so as to induce a steady prolonged heat. Level the surface, and place on some light rich soil 2 or 3 inches in depth, and, the heat not exceeding 80°, introduce the roots. Supply tepid water at 75° to 80°, and then cover the crowns with 2 or 3 inches of finely sifted soil or spent tan. The pit may be kept close until the heads are clear of the soil, when air should be given in favourable weather. Seakale may be forced in a similar manner, but a more moderate temperature is desirable, and means must be employed to exclude light. For Seakale and Rhubarb we prefer the Mushroom house, in which they force readily, providing the roots are placed up to the crowns in light rich moist soil, not affording water until growth appears, when tepid water may be given to keep the soil moist. Mushroom houses are usually dark, hence means are not necessary to be adopted to secure the blanching of the Seakale; but if the forcing be done in a light structure means must be employed to exclude it from the plants, and Rhubarb is also much improved thereby.

The mild weather has been very favourable for late Cauliflowers and autumn Broccoli, and of this advantage should be taken to lift those with close heads and that will admit of some further development. Lay them in a pit where they will be safe from frost; protection being given in severe weather, a supply of heads will be secured until a late period, others being lifted and placed in similar quarters at a later period. Veitch's Autumn Broccoli from coming in late is very valuable, having fine compact heads which are much hardier than Cauliflower. In fine weather earth up late Celery, and hoe between the rows of growing crops, such as Cabbage and winter Spinach. Push forward outdoor operations whilst the weather is favourable.

FRUIT HOUSES.

Peaches and Nectarines.—The leaves have nearly all fallen in the latest houses, and the trees should at once be unloosed from the trellis, thoroughly cleansing the woodwork with soap and water and the glass with clear water, limewashing the walls. If the trees have been infested with scale they may be well syringed with water at 160°, and the trees afterwards dressed with an insecticide, if necessary repeating it before the trees are secured to the trellis. Pruning may be attended to, but if summer-pruning has been duly performed little if any will be required now. The loose inert surface soil should be removed, and good strong loam supplied, adding a little bone meal and wood ashes, but the latter must not be used more than to the extent of a twentieth part. Ventilation must be given to the fullest extent, closing the house only in case of frost. Trees that have not yet lost their leaves should be wholly or partially lifted, and the roots laid in fresh compost nearer the surface. Complete prun-

ing, cleaning, and dressing in succession houses, keeping them as cool as practicable, or if the roof lights have been removed they may remain off so long as the weather continues mild. The lights must be placed on the houses which contain trees intended to afford ripe fruit in June, still admitting air fully, and the outside border should be protected with leaves and litter. See that the roots in the inside border do not lack moisture. Continue the preparation of fermenting material for making a bed in the house, to which fire heat will be applied at the beginning of next month. Early in December the heat should be turned on in the morning if necessary to raise the temperature to 50°; at and above that temperature ventilate freely, employing fire heat at night to prevent the temperature falling below 40° or 36° in the early morning. When the buds are swelling the night temperature may be increased 5°. Until the buds show colour the trees may on fine days be syringed in the morning and early afternoon, avoiding as far as possible a close atmosphere. If there be any deficiency of moisture at the roots supply tepid water, or if the trees are weakly give liquid manure at a temperature of 70° to 75°.

Cherry House.—Replace the lights at once, but the house must be fully ventilated except when severe frosts prevail. Full-grown trees attended to in stopping during growth will only require those shoots shortened back to about an inch from the base, natural spurs being left, also extension growths or those required for filling vacant space. Trees in course of formation will need the central shoot or shoots cut back to originate a supply for filling the space with regularity. The fan mode of training is unquestionably the best that can be adopted, as it affords the means of filling any vacancies that occur through the trees gumming. Terminal shoots, unless for the purpose above indicated, should not be shortened. Remove all decayed spurs, afterwards thoroughly cleanse the house, and wash the trees with an insecticide, and this should be repeated before the buds commence swelling if the trees have been infested—as they usually are under the best of treatment during growth—with aphides and red spider.

FLOWER GARDEN.

Roses should be planted with as little delay as possible, the ground having been prepared by trenching and liberal dressing with manure. If the soil be light it will be permanently improved by mixing with it a good quantity of clay during the trenching, obtaining the clay in a dry state, and breaking it into small lumps before mixing with the natural soil. Roses are particularly fond of strong soil, especially those on the Briar, and where the soil is naturally heavy Roses on this stock succeed better than any other, having the seedling Briar for dwarfs. On light warm soils Roses succeed well on their own roots when liberally treated; and on the Manetti they thrive where the soil is porous. Roses should be planted so deep that the junction of stock and scion will be buried 3 or 4 inches beneath the soil. Cuttings of Manetti may at once be inserted to afford stocks for working next season. The wood of most Roses being now thoroughly ripe, they may be made into cuttings similar to Manetti, only the buds must not be removed. Briars for stocks for standards should be planted at once, selecting those with clean grey stems and not very spiny, as these usually grow freely and develop fine heads. Give plenty of space between the rows to allow free access at budding time, and mulch with partially decayed manure.

PLANT HOUSES.

Forcing House.—Where quantities of flowers and plants for decoration are required a house with pits in which can be formed beds of fermenting materials is a great aid at the dull season of the year. The house cannot be too light, and the means of ventilation should be ample; and if it be so arranged as to accommodate plants of various heights it will be the more useful, having shelves for such as require to be near the glass to secure dwarf growth. To insure well-developed flowers it is desirable that the forcing process be gradual, commencing with a moderate temperature, say 50° at night, and increasing to 55° in a fortnight, with 60° to 65° by day, and an advance from sun heat and liberal ventilation to 70° or 75°. Lilacs can be forced if placed at once in a high temperature; and if large bushes of these be now lifted, placed in pots or tubs and introduced to heat, and duly supplying with water, they will flower finely by Christmas. It is, of course,

necessary that all plants for forcing be well furnished with bloom buds. Charles X. is one of the finest Lilacs, but the common white is very useful, and does not require to be grown in darkness, as is necessary with the purple-flowered kinds, to obtain white flowers.

Perhaps no flowers are more esteemed at the dull season than Lily of the Valley, and to secure them in quantity a bed of fermenting dung and leaves may be made in a pit, so as to raise and maintain for a few weeks a temperature of 75° to 90°, and having hot-water pipes to afford an artificial top heat of 60° to 65°. Plants plunged in a bed of this kind at once will afford a supply of these lovely sweet flowers at Christmas and the new year. The roots must be placed on the bed when the heat is not over 90°, placing 2 or 3 inches of fine soil on the bed, then the roots, working some fine soil amongst them, and cover the crowns about an inch in depth with fine soil, after supplying tepid water. Single crowns may be employed, placing them about an inch apart, or the roots may be lifted from the beds outdoors in the mass, having first ascertained that they are well furnished with flowering crowns.

Where Hyacinths are required early a few should be placed in heat, also Narcissus and Tulips, assigning them positions near the glass, and the temperature not exceeding 55° at night. If they are taken direct from the ashes in which they have been plunged to the forcing house they must be covered with inverted empty flower pots to prevent the leaves being damaged, and after a few days tilt the pots a little, increasing this until the advancing leaves have become green, when the pots may be removed. The general stock of bulbs should not be permitted to remain plunged in ashes until the growth is advanced. They must be removed to a light well-ventilated house before more than an inch of top growth is made, and will need to be gradually inured to the light as above indicated.

Christmas Roses are not always to be depended upon at the time of year their name indicates, but any that are showing the flower stems and buds, if lifted carefully, potted, and placed in a genial temperature of 50°, will expand the flowers with certainty. *Helleborus niger* and *H. maximus* are the best forms.

THE BEE-KEEPER.

BEE BATTLES.

THIEVING scouts and skirmishing parties are common in all apiaries, and hard-fought battles are occasionally seen there, and plunder is the object. Robbing bees are watchful and crafty in attempting to enter hives not their own, and experienced bee-masters know them by their conduct. In watching for an opportunity to enter hives unobserved they fly differently from bees engaged at honest work, and may be seen "standing on wing" in front of and close to the doors of hives they wish to enter, and if their attempts to enter be not resisted and thwarted they speedily accomplish their aims and carry home the honey. As soon as they gain access to it they convey to their own community the idea that a hive has been entered and honey may be had. The way in which the intelligence is conveyed is beyond our knowledge: all we here notice is the fact. The thieves of London know what "a cracked shell" means (a house broken into), and bees know what is meant by a hive undefended; and with marvellous rapidity the unresisting bees lose all their treasures.

Fortunately robbers are generally prevented from entering hives on their first attempt to do so. It may safely be asserted that in every hundred attempts to enter hives for plunder, ninety-nine are failures. When hives are weak their doors are often not well guarded and robbers enter, and sometimes the robbers kill the whole of the small force of defenders. Strong hives during a glut of honey are sometimes off their guard and let their hives be invaded, and if the robber bees are permitted to go in and out without hindrance for a short time they, generally speaking, take all the honey. Successful robberies of strong hives are not common. The robbers are generally discovered before they have done much harm—before they have lost the smell of strangers and foreigners, and when the discovery is made the bees of the invaded hive muster in strength to resist the invasion and make a determined stand against it. As some of the robbers have tasted the honey and carried off some booty, they are determined to

have more, and are difficult to beat back. In their efforts to enter, the attacking force seems to increase in numbers and energy, and while hundreds of them are hurled back and off the flight-boards, hundreds more take their places, and courageously and persistently continue the attempt to take the place by storm. A well-fought bee battle is most interesting. If the door of the hive be rather small, and the robbers successfully resisted for a while (none allowed to enter), they give up the contest and retreat.

When a hive is attacked by robbers all the bee-master can do is to contract the door, and thus make it more easy for the bees to defend it. If he sees the robbers are resisted and repelled he may know that they are so far unsuccessful, and if he find that robbers have gained access to a hive and are engaged in carrying off its honey without resistance, he should know that it can be saved by removal only to a distance of a mile or two for a time. If the robbing bees belong to the same apiary as those that are being robbed, the suggested manoeuvre of Quinby may be tried. His plan is simply to exchange the positions of the hives by putting the robbers on the stand of the hive they steal from, and *vice versa*, and thus confound the robbers. My opinion is, that bees are too clever to be outwitted by this. Our plan is to remove one of the hives to a distance of one or two miles.—A. PETTIGREW, *Bordon*.

BRITISH BEE-KEEPERS' ASSOCIATION.

THE monthly meeting of the Committee, held at 105, Jermyn Street, on Wednesday, November 16th; present T. W. Cowan (in the chair), Rev. E. Bartrum, Rev. G. Raynor, and Messrs. J. M. Hooker, H. Jonas, and the Rev. H. R. Peel, Honorary Secretary. The Chairman reported that he had been in communication with Mr. F. V. Hadlow respecting the exhibition of honey and bee-keeping appliances at the forthcoming Domestic and Scientific Exhibition to be held at Brighton on December 12th and following days. It was announced that the Executive Council of the Brighton Exhibition would grant space, free of charge, to the British Bee-keepers' Association for the display of honey and bee furniture. It was resolved that the Secretary be requested to write to the several manufacturers, asking for their assistance by sending honey, hives, and other goods for exhibition.

The Secretary submitted a proof copy of the prize list of bees, hives, and honey proposed to be offered for competition at the Royal Agricultural Show to be held at Reading next year. It was resolved to submit a similar schedule for the consideration of the Council of the Bath and West of England Agricultural Society, to be offered for competition at their annual Show to be held at Cardiff in 1882. Reports were read from Mr. Henderson the Librarian, and from Mr. Jonas, who has charge of the collection at the South Kensington Museum. With respect to the library, it was resolved that the Librarian be empowered to draw up rules and make arrangements for the loan of the books to the members through the book post. The meeting was adjourned to the 23rd inst. for the consideration of the prize schedule for the Association's annual show to be held at the Royal Horticultural Gardens, South Kensington, on August 3rd, 4th, 5th, 7th, and 8th, 1882.

TO CORRESPONDENTS.

*** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Fungus on Lawns (Sol).—Your lawn probably requires draining, but if you give it a dressing of lime at the rate of a peck and a half to a rod now, and a similar dressing early in the spring, it will probably be beneficial.

Vine Growths Dying (W. C. B.).—Your letter confirms us in the opinion we expressed last week, and we have nothing to add to our reply—namely, that you did not apply the shade soon enough; it was applied just after the injury was done instead of just before. Slight shade and a gentle syringing should be given the moment the growths show signs of flagging, and a high night temperature and close atmosphere must be avoided.

Stocks for *Daphne indica* (G. M.).—The varieties of *Daphne indica* are whip, or splice, or cleft-grafted upon *Daphne Mezereum* or *D. laureola* as stocks, seedlings of the former, rooted cuttings or layers of the latter, being

suitable. The grafting may be done in March, the plants being then placed in a warm propagating frame until the scion has united with the stock.

Wintering Hollyhocks (*E. G. H.*).—The safest mode of wintering the plants is to pot them and plunge the pots in ashes or other suitable medium in a cold frame. If the plants are small or of moderate size they can be conveniently potted, but if very large they are less manageable in that respect, and also less likely to winter well. We have left old plants out for years, but always removed a portion of the soil from around them, and added a good thickness of coal ashes, as the water passes through these more freely than it does through soil. Your plants have been probably attacked by the Hollyhock disease, which you will find figured on page 91, the issue of July 29th, 1880. It is difficult if not impossible to extirpate this great scourge of a fine old flower.

Burning Clay (*An Old Subscriber*).—Burnt clay or ballast is excellent for forming the base of walks. When wood is plentiful a strong fire is made with it, and afterwards small coal is sprinkled with the clay in sufficient quantity for ensuring the combustion of the mass. Where wood is not plentiful coal alone is used; but when once a good body of fire is provided but little coal is needed, as the clay will burn freely if the heap is well attended to. An intelligent labourer will soon learn how to manage the piles when the clay is once set burning.

Exporting Strawberry Plants (*Amateur*).—Rooted runners could be sent in far greater numbers and at less cost than established plants could. The present will be a good time for sending them provided they can be properly treated on arriving at their destination. We should tie them in bundles and secure damp moss round the roots, then pack them in boxes when the foliage was dry, and should expect them to travel safely. If the foliage were wet they might heat in transit, and if the roots were dry they might shrivel.

Daphne Unhealthy (*L. J. K.*).—Possibly there may be scale on some of the leaders of your plant, but there is none on the one before us, the discoloration being the result of a shrinkage of the tissues. Although it is common for Daphnes to lose some of their leaves at this season, yet your plant is not in good health. Its root-action is either defective or the soil is not suitable. Probably if you were to remove the surface soil down to the roots and apply fresh turfy loam the plant would improve. If it is infested with scale the leaves should be carefully sponged with soapy water. The roots of the plant have probably been too dry in the summer. If the pot is very full of roots an occasional application of soot water would be beneficial.

"White Wallflower" (*C. C. J.*).—Our reply, we fear, will disappoint you, for your imagined treasure is not a Wallflower at all but a common form of the Ten-Week Stock. This smooth-leaved variety is distinct and attractive, and seed of it can be had from any nurseryman at the usual price. We have grown it for many years, and have had hundreds of plants. It is known as the Wall-leaved Stock, and a stray plant occasionally appears from a packet of mixed seed; but seed of this variety is also saved and sold separately by the principal seedsmen and florists.

Winter Cucumbers (*G. R.*).—Although the practice you describe is sound it is not communicated in a manner to entitle you to rank among the many competent writers of gardening literature. With care and practice, however, you might attain your object. We could write an article on the same subject more easily than revise what you have apparently written in a very hurried manner, and this fact will be a sufficient answer to your question.

Vines Unhealthy (*J. T.*).—As a rule Vines are more easily managed by amateurs when the roots have access to an outside border, as when wholly inside there is such a fear of overwatering, and the habit of merely sprinkling the surface of the soil is so prevalent, that the lower portions of the borders are much too dry. The consequence of this is, that the roots are either driven into the subsoil, or, if prevented by concrete, they shrivel. Our "Vine Manual," price 3s. 3½d., post free, will be of service to you.

Fumigating Vinery (*A Subscriber*).—Fumigation will do no harm whatever to the Vines, neither will it do good to them or to any plants unless there are insects on them. There are none on the Rose leaves you have sent, which appear to be infested with fungus. We should remove the worst of the leaves at once, and syringe the others with a solution of softsoap, nicotine soap, or Gishurst compound, at a strength of 2 or 3 ozs. to a gallon of water, and then dust the affected leaves with sulphur while they were wet. For extirpating worms from flower pots apply clear lime water, which is made by immersing a few lumps of fresh lime in a pail of water, say 1 lb. to a gallon, and letting it stand to get clear, the scum being removed from the surface as it forms there.

Auriculas (*E. L.*).—The soil reached us in a dry powdery state and contained no maggots; indeed we do not think they could live in such a dry medium. We should certainly not pot Auriculas in soil containing maggots, and, so far as we can understand your case, should report the plants in proper compost, as they cannot be safe under the conditions you name. You might, however, first try the effects of clear lime water, which would not injure the plants, and might either destroy the maggots or cause them to come to the surface, but if the soil is as dry as this before us one watering will not be sufficient. The Primrose is worth preserving, but we have several better and richer in colour.

Potatoes Unprofitable (*W. Elvey*).—You ask, "How can Potato culture pay when the price for the produce is only 4d. per stone?" Our reply is that the question depends entirely on the weight of the crop. In the "Chester-le-Street Times" that reached us by the same post as your letter, it is stated that a farmer in Durham sold his Potatoes for 3d. per stone, yet realised upwards of £22 per acre for his crop. Further, we know of a yield under field cultivation of 104 tons per acre, which if sold at the price you name would be remunerative.

Animal Charcoal (*Birkenhead*).—When bones are charred or distilled at a red heat in close vessels they leave behind a coaly residuum, to which the name of animal charcoal is usually given. By this calcination the animal matter is almost entirely decomposed. The charcoal still retains, however, a little nitrogen, and though it is seldom employed as a manure, yet it is not wholly without effect in promoting the growth of our cultivated crops. Thus in 1842, when applied to Swedish Turnips, Mr. Fleming obtained from the unmanured soil 12 tons 5 cwt. per acre; with 20 tons of farmyard manure, 18½ tons; but when manured with 10 cwt. of animal charcoal, 21 tons 2 cwt. of clean bulbs. We have not tried this form of charcoal, which is commonly called bone black, to either plants or garden crops. As it would not do harm and might do good we advise you to try some experiments, of which we shall be glad to hear the results.

Preparing Tennis Ground (*A. H.*).—You say you have placed drains 7 feet apart, but do not mention their depth. If they are more than 18 inches from the surface they will not be effective in such soil as yours unless the pipes are covered with stones or rubble of any kind to within 6 inches of the surface.

We should break up the clay a few inches deep and dress it with lime freely, adding garden refuse of any kind; and if the surface can be stirred frequently when it is crisp with frost—not otherwise—it is an advantage. In the spring add the soil as you propose, making the surface perfectly level and firm, then sow the seed, sprinkling over it a little fine soil, over which draw a light roller. If you state the character of the soil and the extent of surface to be sown to a good seedsman, the right quantity of the proper mixture of lawn seeds will be sent to you for sowing, telling him at the same time you require a lawn as quickly as possible.

Transplanting Fruit Trees (*J. H. B.*).—The instructions you quote are quite right as they apply to Peach trees, but lifting old Pears is entirely another matter. As you have the trees it would not have been difficult to take the circumference of their stems a foot above the soil, and estimate the surface of wall which the branches cover. We have transplanted Pear trees with stems 18 inches in circumference, but should not have done so if the varieties had not been of proved excellence. Trees having stems a foot in circumference may be lifted with a fair chance of success provided the work is carefully done. Some workmen will transplant a tree of the larger size named more successfully than others will the smaller. As you do not appear to have had experience on lifting trees you would do well to consult a good practical gardener in your district, who would be able on examining the trees to inform you which of them would be likely to remove safely, and would also give you instructions on the spot how to proceed with the work. If you can not do this, and will inform us of the sizes of the trees you think of removing, we will endeavour to aid you in the matter.

Neglected Vines (*T. J. B.*).—If the laterals of the Vines are fairly strong you might hope to obtain a moderate crop next year. To do this we should only retain one lateral at each spur, these being 18 inches apart; and instead of cutting close to the main stem we should prune at the boldest eye, where the wood was firm and mature, tying these pruned laterals to the main rods if needed. Next year we should encourage the growth of new canes from the base of the Vines, and afford them all the light possible, shortening the canes in the autumn according to their strength, and removing the spurs from the old rods entirely up to the height at which the young canes were pruned. By following this practice for about three years you will be able to remove the old rods entirely, and have a house of young fruitful canes without losing a crop. You must also endeavour to produce healthy roots by renovating the border, and this we should do at once. You appear to be aware of the importance of this, and we presume you understand how to proceed in the work, seeing that you do not ask for information thereon.

Chrysanthemums (*J. C.*).—Mrs. G. Rumley, Mrs. Dixon, Mr. G. Glenny, Barbara, Empress of India, Golden Empress of India, Prince Alfred, Prince of Wales, Alfred Salter, Mr. Baum, Princess Teck, Hero of Stoke Newington, White Beverley, Golden Beverley, Queen of England, Princess of Wales, Lady Hardinge, John Salter, Cherub, Novelty, Inner Temple, Aurea Multiflora, Nil Desperandum, White Venus, Venus, Mr. Corbay, Duchess of Wellington, Lord Derby, Beethoven, Isabella Bott, Beauty, Jardin des Plantes, Bronze Jardin des Plantes, Mr. Brunlees, Mrs. Heale, Lady Slade, Eve, Sir Stafford Carey, Golden Queen of England, White Globe, Mr. Gladstone, Mrs. Halibarton, Lady Talfourd, Miss Mary Morgan, Golden Dr. Brock, R. J. Dix, and Golden Eagle, are good incurved varieties.

Names of Fruits.—We have many times notified that only six varieties of fruits can be named at once; still large packages reach us, the contents of which cannot be examined. Some fruits are not named because the sender's name does not accompany them, and we cannot always determine to whom the respective parcels belong, even by the aid of letters received by post. Pears, we have previously intimated, ought to be ripe or approaching ripeness when sent, or a number of them cannot be identified. All packages must be carriage paid; unpaid parcels are sent every week that are not taken in. The fee for naming fruit to non-subscribers is 5s. It is important that these conditions be attended to for preventing disappointment. (*G. H.*).—We do not recognise the small Apple you sent.

Names of Plants (*M. B. D.*).—*Tecoma capensis*, a climbing plant which succeeds in a greenhouse or conservatory. (*A. B.*).—1, *Oncidium barbatum* var. *limbatum*; 2, *Oncidium flavescens*. (*G. W. B.*).—*Calogyne speciosa*. (*J. L.*).—*Woodwardia radicans*. (*J. R.*).—1, Not recognisable; 2, *Linum trigynum*; 3, *Justicia speciosa*; 4, *Cyanophyllum magnificum*; 5, *Monochatum sericeum*; 6, *Golfassia isophylla*. (*William Rayner*).—*Eaonymus europaeus*, the Spindle Tree.

COVENT GARDEN MARKET.—NOVEMBER 23.

BUSINESS quiet, large arrivals of St. Michael Pines this week, causing a serious decline in English fruit. No alteration in Kent Cobs.

FRUIT.							
		s. d.	s. d.			s. d.	s. d.
Apples.....	½ sieve	1 0	to 4 6	Lemons.....	per case 18	(to 3) 0	
Apricots.....	doz.	0 0	0 0	Melons.....	each	1 0	2 0
Cherries.....	per lb.	0 0	0 0	Nectarines.....	dozen	0 0	0 0
Chestnuts.....	bushel	16	0 0	Oranges.....	per 100	0 0	0 0
Currents, Black	½ sieve	0 0	0 0	Peaches.....	dozen	0 0	0 0
" Red....	½ sieve	0 0	0 0	Pears, kitchen ..	dozen	1 0	1 6
Figs.....	dozen	0 0	0 0	dessert.....	dozen	1 0	2 0
Filberts.....	per lb.	0 0	0 0	Pine Apples....	per lb.	1 6	3 6
Cobs.....	per 100	1 75	0 77 6	Strawberries ..	per lb.	0 0	0 0
Gooseberries ..	½ sieve	0 0	0 0	Walnuts.....	bushel	7 0	8 0
Grapes.....	per lb.	0 6	4 0				

VEGETABLES.							
		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2 0	to 4 0	Mushrooms.....	punnet	1 0	to 1 6
Asparagus.....	bundle	0 0	0 0	Mustard & Cress ..	punnet	0 2	0 3
Beans, Kidney....	per lb.	0 3	0 6	Onions.....	bushel	3 6	5 6
Beet, Red.....	dozen	1 0	2 0	pickling.....	quart	0 0	0 5
Broccoli.....	bundle	0 9	1 6	Parsley.....	doz. bunches	3 0	4 0
Brussels Sprouts..	½ sieve	2 0	2 6	Parsnips.....	dozen	1 0	2 0
Cabbage.....	dozen	0 6	1 0	Potatoes.....	bushel	2 6	4 0
Carrots.....	bunch	0 4	0 6	Kidney.....	bushel	3 0	4 6
Capicums.....	per 100	1 6	2 0	Radishes.....	doz. bunches	1 6	2 0
Cauliflowers.....	dozen	0 0	3 6	Rhubarb.....	bundle	0 4	0 6
Celery.....	bundle	1 6	2 0	Salsify.....	bundle	1 0	0 0
Coleworts.....	doz. bunches	2 0	4 0	Scorzoneria.....	bundle	1 6	0 0
Cucumbers.....	each	0 4	0 6	Seakale.....	basket	2 0	2 3
Endive.....	dozen	1 0	2 0	Shallots.....	per lb.	0 3	0 0
Fennel.....	bunch	0 3	0 0	Solanach.....	bushel	3 0	0 0
Garlic.....	per lb.	0 6	0 0	Tomatoes.....	per lb.	0 8	0 1
Herbs.....	bunch	0 2	0 0	Turnips.....	bunch	0 4	0 0
Leeks.....	bunch	0 3	0 4	Vegetable Marrows	each	0 0	0 0



POULTRY AND PIGEON CHRONICLE.

STABLE ACCOMMODATION FOR HORSES.

(Continued from page 462.)

It now becomes important to inquire whether the system advised yields all the advantages which we require, and which was devised for the purpose of maintaining our horses of every description required for fast work in full health and condition, and capable of the work and exertions expected of them. Many of these animals are extremely valuable, and are the pride and pleasure of their owners in the hunting field, on the racecourse, and for carriages. To fulfil any of these objects the horses must be in perfect health, and we can quite understand that many of their owners are prepared to incur great expense for the purpose of insuring this, and to obtain stable accommodation, which will be not only perfect but pleasing to the eye.

This brings us to certain important questions. Are the stall or box floors laid in the best manner and composed of the best material for the horse to stand and lie upon? Is the foot, which is certainly one of the most important parts of the animal, well provided for under the system of clinker brick floors, of whatever pattern or design? Is this most calculated to maintain it in the best possible condition? We think not, for as the fashion of shoeing is now carried out the foot is not only apt to contract and become too narrow, but also it becomes too dry and unelastic, and suffers from cracks in the hoof, which with the habit of stamping in some horses soon throws off the shoe and breaks away the hoof. This is for the most part attributable to the method of shoeing now practised, which is well treated of in an essay on the subject—"The Horse's Foot, and How to Keep It Healthy," by George Fleming, F.R.C.V.S., Second Life Guards. Mr. Fleming observes, "The evils of ordinary shoeing are due to erroneous notions and a desire to make fine work. By the majority of farriers the foot of the horse is looked upon as little if anything more than an insensible block of horn, which they may carve and mutilate with impunity and as suits their fancy. Not content with rasping or chiselling away the most important and essential part of the wall or crust of the foot, the farrier must needs, to 'finish' his work in an artisticlike manner, rasp the remaining portion up to the hair, thus removing the smooth dense surface, which stands very much in the same relation to the hoof that the bark does to a tree. A strange notion also prevails among grooms and farriers, that the frog should not touch the ground, and if it does it will cause the horse to go lame; hence they take every care that it shall not do so by paring it away as much as possible, or by thickening the heels of the shoe. At the same time there is no doubt that the majority of cases of 'navicular disease' and 'thrush' are more or less directly due to paring and preventing the frog reaching the ground."

We do not propose to quote more of the excellent and practical remarks of Mr. Fleming as to his plan of shoeing, but will refer the reader to our article on the shoeing of farm horses, as given in this Journal on the 5th of June, 1879, where the whole of Mr. Fleming's system is stated in detail. We have only quoted a few observations from him as showing how liable the horse's foot must be under the ordinary system of shoeing, not only to contraction of the hoof but to its liability to breakage when resting upon a hard and impervious floor; and as the old saying is, "No foot no horse," it becomes a matter of the first consideration how

to keep it healthy and equal to daily use. We do not for a moment suggest that we can obtain a better impervious floor for all purposes including drainage, but we most decidedly object to impervious floors, because they do not afford comfortable lying for horses, being too cold and hard; and contend that the absorbent floors of earth are better, the practice of which was started thirty years ago, and the attention of the public was called to it by an essay upon the subject, which received a premium at a local Agricultural Society's meeting in a southern county at that time. As, however, this system has now been in use for so long a period, we can recommend it from our practice as being the best for all the requirements of stable management. We give our experience, which includes three different arrangements: each, however, is based upon the earth-floor system more or less. First, the plan of single stalls with earth floor; second, the plan of loose box with earth floor; and third, the plan of loose box with earth at the bottom, with straw as an accumulation above, upon somewhat the same method as usual in accommodating fattening bullocks.

Before entering on the details of our plan of earth flooring, as so many persons unacquainted with the power of earth for absorbing the urine of animals are doubtful of the capacity of earth in such cases, we will first, before stating the result of our own experience in this matter, give the scientific opinions of Dr. Voelcker, in an essay from which we quote, given in the Journal of the Royal Agricultural Society of England in 1859, on the changes which liquid manure undergoes in contact with different soils of known composition. He states—"In a paper, 'Farmyard Manure and the Drainings of Dungheaps,' published in vol. xviii. of this Journal, I communicated the results of two experiments, which showed that drainings from dungheaps, in passing through soils of known composition, undergo a series of remarkable and important changes. Since the publication of this paper I have been actively engaged in following up this interesting inquiry, and at the request of the Council of the Royal Agricultural Society have now the pleasure of laying before the readers of the Journal the results of my recent researches on the subject." A series of very important details follows, relating to the power of soils to absorb the urine of animals, which we commend to the attention of the reader. It is, however, too lengthened a statement to appear here. We shall only refer to certain observations made by Dr. Voelcker in his papers upon this subject, in order to show that science fully recognises the value of earth as the proper medium for the reception of all excrementitious matters both solid and liquid, and that nothing effects so complete and rapid deodorisation and disinfection of putrid animal matter of every kind as a well-aerated soil. As soils vary in degree as to this power, it is a fact that strong and tenacious clays, as well as calcareous clays and strong loams, are more adapted than sandy or other light soils for absorbing and fixing the ammonia and other manuring agents, such as potash and phosphoric acid, by not only preventing injury to health of the animals, but retaining in the most available state all the manuring elements.

In proceeding with our subject, taking first stalls for horses with earth floors. The earth should be stored away until perfectly dry, and made fine so that it will pass through a half-inch sieve or screen, and thus enable all extraneous matters, such as sticks and stones, to be removed simultaneously. On the home farm we make use of an outhouse, shed, or barn now for the storing of earth to be manipulated by the workpeople at odd times and in wet weather, and thus fully utilise their labour at all times. In the adaptation of an ordinary stalled stable we take up the floor and excavate the earth to the depth of 18 inches. If in a dry soil it needs no concrete at the bottom if the sides are properly pinned with brick or concrete, the latter being best. In some instances we have merely excavated about 15 inches at the end of the stall nearest the manger in depth, because a tethered horse will drop its urine so much in one spot that the earth sooner becomes saturated in one part, and requires to be removed oftener than when a loose box is used. The filling-in of the earth, when perfectly fine and dry, should be done carefully by constantly using an iron-headed rammer, in order that it may be made perfectly solid for the animal to stand upon; the liquid manure will then sink into the earth without making any hollow on the surface, but the solid excrement should be removed as in the ordinary way and the floor swept as usual. One of the points in the daily attention of the groom is that much less straw is required for littering the stall than in the case of a brick or stone, concrete, or other impervious floor—a matter of no small importance where straw is scarce and dear. The floor will then secure good standing and lying for the horse; for although the earth may be rammed down firm and solid, yet it is found much better for the horses' feet, not being so liable to throw a shoe as when stamping on a

hard floor like clinker bricks; and when the animal lies down he finds a much more comfortable bed also, and as the urine is immediately absorbed the air is never tainted if the ordinary means of ventilation is adopted.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Wheat-sowing still proceeds, but is now nearly finished in all the latest districts—at least, it is sown up to the hurdles where sheep are eating off Turnips, Rape, and Cabbage. The season being so fine we advise the home farmer to sow as much Wheat as he can find suitable land for, as it is now and ever has been the rent-paying crop, except in some districts where the soil is more especially kind for Barley, and producing in ordinary seasons a malting sample of grain. The teams should now be fully employed in fallow-ploughing the land intended for Potatoes, Mangolds, and Swedes; and if the land has been autumn-tilled and cleaned of couch on the surface it may be ploughed the full depth, so that no raw subsoil may be brought up; for rather than plough too deep we would sooner use the subsoiling implement, following in every furrow behind the plough. We still note upon various farms in many districts that the land intended for Barley after Wheat or for roots in the spring is extremely foul, and in many cases no attempt has been made to clean it by autumn culture. When this is the case we do not recommend deep fallow ploughing, but we would prefer to rafter or half-plough, otherwise double-rafter or back-stetch, as either of these plans leaves the land open to frost, and sufficiently open also to allow superfluous rainfall to pass easily into the subsoil, at the same time keeping the couch near enough to the surface for working out on the first favourable weather in the spring. We note that some farmers have been following the land by deep ploughing, although heavily laden with couch grass. The result of our experience compels us to denounce this practice, for when so treated it is very rare that we can bring, even by continuous and costly labour, the couch upon the surface entirely; but we have often seen that in attempting this the roots have been divided into small pieces, rendering it almost impossible to be destroyed, especially when the spring season is showery. Trifolium, Vetches, Rye, and all catch crops look more promising than in any of the past three years. The winter Beans, winter Oats, and winter Barley are also very promising; in fact, look which way we will on the home farm we are gratified by the appearance of all our autumn seeding, nor can we recollect a finer season within our long experience for all farm work usually carried out in the autumn. Some threshing of Wheat and Barley may now be done with advantage, for it is useless to defer this work until the busy period of spring or summer, for it is a question of labour more than of policy both for men and horses; and it is also a question of providing straw for litter, fodder, and for sale, to be delivered in the period of leisure for horses. All straw should be stacked and thatched as fast as thrashed, especially now straw is selling at a high price—in fact, it is as dear as hay in some of our northern and midland counties. Still, much of it has been so injured in colour and quality by the heavy rains in the harvest that very little is fit for foddering cattle, unless it is cut into chaff and spiced and mixed with pulped roots, cake, meal, &c.

Live Stock.—Cattle have done well during the autumn, but foot-and-mouth disease is still prevalent in certain districts in the kingdom, and we know some farms, where the tenants were on the point of quitting, that this disease has amounted to a great disaster in consequence of non-removal of the animals and reduced condition. Sheep have been more free from foot-rot and epidemic lameness than we have known them for the past four or five years. Fattening sheep have made good progress—in fact, where the cake and corn has been liberally supplied to them more mutton has been made than in the generality of autumn seasons. Horned ewes of some of the best flocks which we have lately visited have nearly finished lambing. Some flocks have quite done, and the ewes and their lambs are now together folding on common Turnips and looking beautifully; some of the earliest lambs now weigh 8 lbs. per quarter, and will be very fat and handsome for killing at Christmas. It is very entertaining to walk through these noble flocks as we have lately done, such as we know from experience are of the finest tribes, and we are pleased to find that as the weather has been fair and fine a larger number of lambs have fallen and been saved than for some years past. It is greatly in their favour that the best sorts of Dutch and Hop Clover hay has never been known in finer condition for the feeding of early ewes and lambs; in fact, we have examined some flocks which have as yet only received hay and red round Turnips, and are as fine in condition as they well can be. It is not only the horned ewes which are so forward this year, but the west-country down ewes are also forward, and various flocks we know of are due to lamb well together during the month of December, and we notice also that they are in splendid condition. All the bullocks for fattening should now be in the stalls or boxes. We prefer the latter, especially for those which are nearly ready for the shambles, and as the Christmas demand for beef is now very near liberal feeding must be continued until they are sold.

BATH AND WEST OF ENGLAND SOCIETY.—At the last Council Meeting of the Society held at Bristol, it was resolved, on the

motion of the Hon. and Rev. J. T. Boscawen, seconded by Colonel Luttrell, that the Cardiff Meeting next year shall commence on the Monday in the week between the Epsom and Ascot races. The fixture of this date was justified on various grounds, among others the desirability of adhering to the old usage of the Society anterior to the existence of either of the great Metropolitan Horse Shows; the importance of the usual date to manufacturers, more especially of mowers and haymakers, who, in anticipation of the hay harvest, find a very large sale of such labour-saving machinery; and further, a desire to abstain as far as possible from interfering with the Royal Agricultural Society either as to the date or district of its meeting. As at Cardiff there are peculiar facilities, it is proposed to have a large exhibition of field implements within the show-yard as long as the Show continues; for this purpose grass crops will be provided free of charge, under such arrangements and limitations as shall be determined by the Field Stewards, for the working exhibition, within and immediately outside the yard, of grass-cutting, haymaking, rick-making, and any new appliance for saving the grass crops. With reference to the meeting, a deputation of the Glamorganshire Society, consisting of Colonel Turbervill, Mr. Garsed, and Mr. Huntley (Secretary), attended to express their desire to amalgamate with the Bath and West of England and Southern Counties Society, and, instead of holding a meeting of their own during the year, to offer prizes of upwards of £200 for competition in the Cardiff show-yard. After some discussion as to the terms on which the amalgamation should take place, it was cordially ratified on both sides by the Council and the Deputation.

POULTRY AND PIGEONS

POULTRY NOTES.

WE referred last week to the admirable manner in which the arrangements for receiving and penning the legion of poultry and Pigeons at the Crystal Palace Show were planned and carried out inside the building. Everything was as orderly and methodical as if only five hundred instead of five thousand birds were being dealt with. The management earned success, and we are pleased to be able to record that the Committee have had substantial proofs that their efforts are appreciated. Never before have they had such an entry, and never before has the number of visitors to the Show approached the record of this year. The sales, also, have been large; and though we have not heard of any such sensational purchases as have been made in some former years, yet many good birds in the poultry section have changed owners at prices varying from £10 to £25. Lady Gwydyr's cup and second Dark Brahma cockerels reached the latter figure, the former going to join the cup old cock and the latter to a Yorkshire yard. Amongst the Pigeons, also, sales were brisk, one bird—an English Owl—finding a purchaser at £50, and others at £30, £25, and £20.

APART from the question of judging, which is a very difficult one, and to which we referred in our note last week, there are one or two points as to which we would venture to offer a suggestion. There was a class for table poultry, pure or cross-bred, to be judged by weight only, and another for cross-bred table fowl to be judged for fineness of quality, &c., "sex and breed of parents to be stated." These are useful practical classes, and the provision which we have quoted from the schedule applied to both, and enforced, would make them of great value to the poultry farmer. As a matter of fact the rule only applies to the last-named class, and was far more honoured in the breach than in the observance. The cup for weight went to Mr. Boissier with a massive pair of Silver-Grey Dorkings which weighed 19 lbs. Second and third were fine-looking birds, probably of Brahma-Dorking origin, but the catalogue was silent as to this. In the other class the Rev. G. Gilbert took the cup with a pair of close-feathered meaty-looking pullets, but, in defiance of the printed rules, their parentage was not disclosed. We guess them to be a cross between Pile Game and Silver-Grey Dorkings; but why should we be obliged to guess? Second here went to Mr. Tegetmeier with a fine pair of cockerels. The catalogue gives the parentage here as "Dorking cock and Game hen," but adds the puzzling words "second-cross cockerels." What does this mean? Did Mr. Tegetmeier cross back to the Dorking or to the Game? and if so, how does the statement as to parentage come in? Third were evidently also of a Game-Dorking cross, but were again without pedigree. These classes ought to be the means of disseminating useful information as to cross-breeds, and it is for the Committee to apply the rule as to stating parentage to both classes, and to insist upon its being strictly adhered to.

THE other matter as to which we have a suggestion to offer is

one which may be of vital importance to some of the exhibitors. The floors of many of the pens were newly painted or coloured with some green fluid. They were partially covered with shell grit, but this did not prevent the green from coming off on the feet and breasts of the birds and being thence transferred to their heads and necks. This was bad enough, and would entail on the exhibitors much extra trouble in washing, but the risk of the birds swallowing some of the green matter with their food, and being thus perhaps seriously affected in health, is a more serious matter. We observed one very valuable hen much soiled with this green paint, and she has since her return home been suffering from diarrhoea. We suggested the paint as the cause of the mischief. We may be wrong as to this; but in any case a word of friendly caution may put the committees of other shows on their guard, and render a repetition of the painting process improbable.

THE arrangements outside the Show for the delivery of the birds were this year much improved. The railway companies formerly loaded the hampers on large vans for the purpose of sending them a few yards across the road to the Palace. This entailed a good deal of unnecessary piling-up of hampers. This year the birds were delivered by hand by the railway companies at their respective passenger entrances to the Palace. We watched the process for some time at the high-level station, and it suggested two thoughts to us. One, that the railway company might well have provided a few extra luggage trucks of the three-wheeled pattern to facilitate the work. The porters were fairly careful, and one ingenious man had constructed a good four-wheeled truck by tying together two of the ordinary luggage trucks; but in the majority of cases the baskets had to be wheeled on the ordinary trucks, and consequently tilted to a considerable extent. Our second thought was as to the general want of some means of taking hold of the hampers near the centre of the top, and thus carrying evenly two hampers, one in either hand. It is hardly to be expected that a railway porter having an enormous number of hampers to deal with should make a separate journey with each hamper; and if there be no handle at the top of the hamper he is obliged to catch hold of the hamper on one side and thus tilt it over, to the manifest detriment of the birds inside. Exhibitors should see to this.

THE CRYSTAL PALACE SHOW.

WE have of late years seemed to see some decline in the interest taken in the Palace Show. The entries for a year or two were somewhat below what they had been, the sales were apparently less numerous, and undoubtedly the attendance of the general public, as distinct from fanciers, was smaller. This year, however, all has again changed for the better. The Show was the largest ever held, and the Show was day after day crowded. The greatest interest, too, was shown in the multitudinous appliances exhibited—poultry houses of every kind and size, both ambulant and stationary; aviaries and runs; incubators and mothers, both "hot" and "cold;" drinking fountains and hoppers. Many of these contrivances were excellent, and offered at really moderate prices, and in consequence we saw "sold" tickets on a large proportion of them. Some of the incubators were of large size, and destined to hatch Ostriches in South Africa. Poultry-breeding is certainly not on the wane, and a healthy sign of its progress is that, as far as we could see, many of the purchasers of incubators and other appliances were not breeders of exhibition but only of table poultry.

The adult Dark Dorkings struck us as particularly handsome and in good condition, the hens especially so, and as being nearly all birds from which we should ourselves be glad to breed. This is a distinct gain, for we have often seen in the prize list decrepit old creatures, solely placed there because they were "the celebrated winners" of some celebrated breeder. We regret to see dark feet on the increase just as we have got rid of long legs. We have never been captious grumblers at judging—only those who have tried the work know its difficulty; at the same time we must say that only from great carelessness or great ignorance could any judge give a prize to such a bird as is one of the Silver-Grey cockerels. Such awards do the utmost harm. Beginners spend much money, time, and pains in producing creditable specimens, pay 8s. a pen for entering them, and then find a prize given to such a bird as ought to be the first to be given to the cook.

It is a great pity that the White and Black Cochins were mixed, the latter breed thereby being practically excluded from competition. The first White pullet, though pretty, struck us as being very small and generally inferior to the second.

It is unfortunate that Hamburgs have got so entirely into the hands of one class who understand their "improvement." Those who scruple to practise it are being by degrees ousted from the Hamburg fancy. We hear a rumour that the Rev. W. Serjeantson is on this account giving up Black Hamburgs, and is likely to take up some breed of Dorkings. Some of the Silver-pencil cockerels at the

Palace were very pretty. They would be a nice breed for some amateur to start, if only the trimming of combs could be stopped.

In the class for "Any other variety" Polish, were several good Padue Chamois, which, however, contend at great disadvantage with White-crested Blacks. Why one beautiful cock (Mrs. Ricketts') was unnoticed, while an indifferent hen or two had cards, we did not understand. We hear that an admirer, though not hitherto an exhibitor of Polish, has guaranteed the prizes for a fourth class of Polish at the forthcoming great show of the Poultry Club. This will be a good chance for fanciers of Padue Chamois, or any of less known kinds.

The little cup Pile Game Bantam cockerel, shown by Mr. E. Watson, was the winner of a very handsome sum—viz., the ten-guinea special cup for the best Game Bantam, as well as the four-guinea cup for the best Duckwing or Pile cockerel.

We were pleased to see that Mr. T. P. Lyon has added Game Bantams to his stock, and is at once as successful with them as with large Game. He won cup for his Black Red cock, and first for hen of the same breed.

It is a long time since we have seen such small good clean-legged white Bantams as were the three winning pens. Japanese Bantams by no means showed so well as last year. The cup was most strangely awarded to a pair in nice condition, but wanting all the distinctive characteristics of the breed. Their legs are comparatively long, and the cock has round sickles flowing back like a Hamburg. Surely good Japanese should have almost straight tail feathers carried very high and in squirrel fashion close to the head. There were such birds in the class, and beauties too. How could the Judge leave unnoticed such a pair as Lady Dartmouth's? They are dark frizzled Japanese. We understood that his reason was that they ought to have been entered in the Any other variety class, but they have every characteristic of true Japanese in form, head, legs, and carriage. We preferred Mr. Tearle's h.c. pair of Silver Sebrights to all the winners; their size is small, and their general contour more like the older Sebrights.

The class of Aylesbury Ducks was, as usual, small. The monopoly of prizes which a few breeders of this variety have long had prevents many who have really good specimens from showing them. Pekins had four classes, and numbered sixty birds. The cup drake was a simply gigantic bird. We could not help remarking that a Duck far beyond the rest in size, belonging to Mr. W. J. Nichols, was only h.c. Her colour, we understood, was not sufficiently yellow to satisfy the Judge's fancy. As this lemon tinge seems to vary much with the time of year and character of the water, it is not a very satisfactory test of race and quality of the bird. Fancy Ducks made a very sorry appearance. The two winning pairs of Mandarins were excellent, and Miss Arnold's Duclairs are portly, and no doubt profitable. We hope at Birmingham to see a far different display, where the beautiful varieties of fancy Ducks have proper classification.

Turkeys formerly had three or four classes; they are now cut down to one for cock and hen of any age. This is hard upon intending purchasers who want a single fresh bird. The number of Turkeys sold at Birmingham, where four classes are provided for them, is prodigious, and we should have thought that a like classification at the Palace would have been a paying concern. The winning pairs were very handsome.

The public seems attracted to the Palace Selling classes by some strange spell. Capital birds at very moderate prices in the open classes are passed, but the most antique and rubbishy specimens find ready purchasers in the Selling classes, simply because they are selling classes. As we walked down some of the long rows there seemed hardly a pen not labelled "sold."—C.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1881.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
November.			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
			Inches.	deg.			deg.	deg.	deg.	deg.	
Sun.	13	30.393	56.0	52.7	W.	49.2	59.7	49.2	85.1	43.3	—
Mon.	14	30.387	50.7	51.7	W.	49.6	54.2	50.4	86.2	47.4	—
Tues.	15	30.057	47.4	45.4	S.W.	49.6	54.4	45.4	85.6	44.4	—
Wed.	16	30.036	50.6	47.9	S.W.	48.7	55.6	43.0	85.7	36.3	0.290
Thurs.	17	29.741	48.6	46.2	W.	49.1	55.2	47.6	90.4	42.6	—
Friday	18	30.300	38.6	38.5	E.	47.9	47.6	34.6	49.6	28.6	0.012
Satur.	19	30.246	49.5	48.3	S.W.	48.7	52.8	33.4	83.0	31.7	—
		30.166	48.8	47.1		48.9	54.2	43.9	73.7	39.2	0.302

REMARKS.

13th.—Fine and mild; very cloudy sky with beautiful rose tints.

14th.—Misty early, overcast throughout.

15th.—Fine bright day; starlight night.

16th.—Fine morning; afternoon and evening wild and stormy with rain.

17th.—High wind in morning; fine bright day; calm evening.

18th.—Fog in morning; afternoon fine; evening damp.

19th.—Fine and mild; bright sunshine.

Temperature rather lower than in the previous week, but still much above the average.—G. J. SYMONS.



1st	TH	Linnean Society, at 8 P.M.
2nd	F	
3rd	S	
4th	SUN	2ND SUNDAY IN ADVENT.
5th	M	
6th	TU	
7th	W	Sale of Bulbs at Mr. Stevens's Rooms, Covent Garden.

APPLES AND PEARS OF THE LATE SEASON.

IT is now time to speak of the year 1881 as it has proved to be. The promise of spring is over, the fulfilment of autumn is also over. My knowledge and observations must be understood to be confined to the four counties—Wilts, Somerset, Hampshire, and Sussex; further afield I have not been. What, then, of the past season? We have had lately pleasant “seraps” concerning fruit, but happily the fruits have not themselves been “seraps” or small samples, but, as far as I have seen, an abundant harvest.

Let me first speak of Pears. The Pear which has this year pleased me above all others is Beurré Hardy, a Pear particularly recommended to me a few years since by the late excellent senior Editor of this Journal. “Whatever Pears you plant, mind and plant a Beurré Hardy, that grand large Pear,” said Mr. Johnson, and my experience of it fully confirms his opinion. It is large, handsome in outline and colour, looks well on the tree and on the dessert dish, and, more than all, has ripened well; is perfect, to my mind, in its Pine-Apple-like flavour, and so juicy we seem to be eating and drinking at once. It forms also a very handsome tree both as to growth and leaf, and is fit for a lawn. Next and worst is Beurré Diel; so bad that I have uprooted the tree. Mr. Smee says of it, “Very unequal, sometimes very good.” It may be the latter, but it has proved only bad with me, though I have tried it year after year. Another very inferior Pear is Seckle, which I do not think worth growing. It is very small and of a vulgar sweet taste, fit only for a huckster’s shop and for school children to spend their pennies on.

Concerning Beurré d’Amanlis I must speak a favourable word. It has proved with me an enormous cropper of clean-grown large fruit, handsome in form. One I have (a pyramid) resembled a fountain as each branch bent with its load, and it well deserved being photographed. It is not certainly the high-class Pear that Beurré Hardy is, but it comes in well after Jargonelle. Mr. Smee speaks of it thus disparagingly: “Beurré d’Amanlis is a handsome large Pear, utterly devoid of flavour.” Now, good judge of fruit as was the late Mr. Smee, I must differ from him here. This Pear is utterly devoid of flavour until it is perfectly ripe—regularly dead ripe, then it is good, but before then it is a mere Turnip. The best early Pear I still hold to be with Rivers the Summer Doyenné, and Bergamotte Esperen is one of the best winter and spring Pears. Other Pears do not call for much comment. One remark I would make—that I gather winter Pears as late as possible, each year later than before, for I am sure it is the best plan,

and that until the leaves turn colour the fruit should be on the tree; this I take to be the right rule.

I now turn to Apples. Let no one shudder, but with further experience I should never again think of planting Joanetting, Margaret, Keswick Codlin, and—start not, lover of old days—not Golden Pippin either. Joanetting and Margaret are quite surpassed by Irish Peach in healthiness of tree, beauty and flavour of fruit, and length of keeping. So also Keswick Codlin is equally surpassed by Lord Suffield. For winter dessert Cox’s Orange Pippin eclipses the old Golden and also Ribston Pippin, because it does not canker, and the Ribston does. I am satisfied with Duchess of Oldenburg; more and more pleased with Ecklinville Seedling, an Apple among the best twenty grown. I am also equally satisfied with Winter Hawthornden, better so called than New Hawthornden, as the term “winter” keeps it distinct from the other and older, which is a summer fruit, and very excellent it is, but the tree is given to canker, whereas the Winter Hawthornden is remarkably healthy. Beauty of Kent also cankers terribly when grown on the Paradise stock, which I regret, as it is a magnificent Apple. Lodington I think well of, but my experience of it is short, so also of Betty Geeson. As of Ecklinville Seedling, so I desire to have a special word of commendation for Gravenstein and Stirling Castle. The former is of good size, singular shape, and true to the origin of its name, “Engraved Stone.” I do not know a better Apple for the two purposes, table and cooking, and its size recommends it, together with its keeping well. Stirling Castle is another admirable Apple, of good size and beautiful shape; but the tree is apt to bear so much as to make little growth. The fruit will keep well over Christmas, and the flavour is excellent. There is a misprint in the “Fruit Manual” in regard to this Apple, where it is put down as “in use early in August,” while it is not ready until October. Did it grow as strongly it would compete for the premiership with Dumelow’s Seedling as a winter cooking Apple; but taken altogether the old seedling is unequalled. Peasgood’s Nonsuch does not bear with me, also in a certain degree Summer Golden Pippin and Striped Beefin.

Next a word about cankering. I think, first of all, there is in some varieties a strong tendency to canker, while others are perfectly healthy. I have moved into exactly the same place a Dumelow’s Seedling where another tree has died of canker; but it remains perfectly healthy, so that soil does not affect canker much, but frost increases it, particularly with new wood; also a damp situation—ground that needs draining—increases the disease in those trees given to cankering, as also “gumming” in Plum trees; but still I hold that the tendency to canker badly is innate in some varieties, such as Old Hawthornden, better called Summer Hawthornden, Beauty of Kent on the Paradise stock, Ribston Pippin, and some others.

I should gladly see many varieties of Apples and Pears disappear from nurserymen’s fruit lists, and then they would gradually go out of cultivation. I doubt whether there are more than forty first-class Apples—first-class in flavour, size, bearing, and healthiness, putting aside the cider varieties. I also should be satisfied with forty Pears for walls, forty for pyramids, and forty for standards, but I doubt if such forties fully satisfying all requirements are to be found. If we are to become a fruit-growing nation for profit we must have for the market Apples equal to those sent from America, and Pears really good, not deceivers lying on fruit dishes for show only.

People, too, are apt from association and recollection to plant trees the fruit of which they liked in youth, not remembering that the untrained fruit appetite of a schoolboy and that of a man are different. Boys readily and eagerly eat the small and the sour.

I am trying several other varieties of Apples and Pears which have been figured in those numbers of the "Herefordshire Pomona" which have as yet appeared, but I cannot venture to give an opinion of their merits until another year or two. This has been a grand year for Crabs of every variety, and very much have they added to the beauty of our gardens, for Crab blossom and Crab fruit are both extremely delicate, telling, and beautiful.

An authority from Woreestershire thus writes to me in regard to the past season:—"I have seen," says he, "some remarkably good and well-ripened fruit about here this season. As regards newish Apples, I think the Eeklinville Seedling will in all probability surpass Lord Suffield. Red Hawthornden and Yorkshire Beauty are capital kinds, and the Woreester Pearmain is a very good dessert Apple, and for profit should hold its own, as it is attractive, good, and early."

And now, Englishman-like, I must end with a grumble. I was much taken with the Hampshire late-keeping Apple, Hambledon Deux Ans. I judged of the fruit, but had not seen a tree. Being determined to have a tree from Hampshire—supposing, at any rate, "good coals must come from Newcastle," so at some expense I bought an espalier from a Hampshire nurseryman. I waited two years for a specimen of its fruit, and it was not a Hambledon Deux Ans at all, but a Red Astrachan, which I did not want or wish to have in my garden. Of course I was vexed; indeed I am compelled to own that many smaller men and some larger men in the trade are very careless in this matter. When I have in walking through a nursery noticed that wrong names were on the trees, the answer I have got is, "The boys have mixed the labels." Can anyone wonder that buyers are driven to send to the great men of the trade, from whom they are sure to get what is wanted? Nurserymen injure themselves by such carelessness and drive trade away from them, but they have no one to blame but themselves.—WILTSHIRE RECTOR.

A ROCKERY FOR ALPINE PLANTS.

(Continued from page 457.)

HAVING lately seen the term "alpine" limited to plants which grow on the Alps, it may be as well to say that in these notes I have used the word in a wider sense. The mountain flora of the Alps is, perhaps, the richest in the world; but any flowering plants whose home is on the slopes of mountains anywhere, if quite hardy in the climate of the Alps, may by analogy be called alpine plants. However, it is not easy to define an alpine plant, nor is it necessary.

I think I proposed to name about fifty alpine, and though I have kept no account I seem to be approaching this limit; but on looking into my rockeries pretty claimants for the vacancies which remain come in sight at every turn, and some seem to reproach me with not having selected them for honourable mention, as if I had forgotten them because they flowered in spring, and had preferred others which were gay more recently in memory; but I must try to be as fair as I can.

No one can expect to grow *Androsaces* without trouble, but they are worth it. They do not mind cold, but many devices are recommended to save them from wet in winter, which they abhor. Potting and putting them into a cold frame is, perhaps, a cowardly way of solving the difficulty, though I adopt this plan with many alpine, of which my stock is small. Some expert gardeners advise laying a flat piece of glass in such a way as to keep rain but not frost from them in winter. The west winds here are too strong for that. I prefer to plant them in recesses under projecting ledges of limestone, where there is a space of 3 or 4 inches between the soil and the upper rock. In this way *A. Laggeri*, *A. sarmientosa*, *A. lanuginosa* in peaty soil, packed round with broken limestone, are tolerably happy through the winter, and I am gradually extending my experiments with others. A biennial of no great attractions, *A. coronopifolia*, sows itself on the barer crevices of the stones, and gives no trouble. The same may be said of *Erinus alpinus*, most useful for varying the surfaces of the limestone and growing in the smallest cracks. *Linaria alpina* is another of these self-sowing plants, and should be encouraged in bare spots where hardly any other plant will grow. *Linaria pallida* and *L. hepa-*

ticifolia, good as they are in their way, must not be allowed to spread too much, as they grow rapidly. *Dryas octopetala* is a model alpine, of which you will not easily obtain too much; as well as its near relation, *D. Drummondii*; it prefers limestone, the surface of which it clothes most neatly. If *Thalictrum minus* would grow as it does in the bare crevices of its native rocks few alpine would be more attractive; but it has a tendency to become coarse in cultivation, and must be confined to the driest and poorest spots. *Lychnis Lagasce* is a neat plant, which may be raised in plenty from seed, and, though a perennial, often damps off in winter. I will say more of this and similar shrubby plants in a future number. *L. alpina* is a neat and desirable plant for a bare upper ledge, liking a surrounding of fine gravel.

The limestone rockery is the best place for that interesting and nearly extinct native, *Cypripedium Calceolus*. Planted in a pocket in the limestone in a mixture of good loam and peat, with broken limestone about its roots and an annual top-dressing of leaf soil, it will do well, but will take some years to become a fine plant. Of the *Gentians* *G. verna* will do best in damp pockets near the base facing the sun, but must be constantly watered in summer. *G. acaulis*, too, likes full sun, and loose stones a few inches beneath the surface; it is capricious about soils, and I can give no golden rule to ensure success. *G. septemfida* likes peaty soil and shelter from hot sun. Many others are worth growing, but some are very difficult subjects. By all means give several spaces near the summit of the rockery to Wild Thyme (*Thymus Serpyllum*), not forgetting the pure white variety. It is one of the very best of rockery plants if well grown, and to be well grown it must be kept quite off the soil; but when planted with its root close to the upper edge of a slab of limestone, so that the whole growth rests upon the rough stone, it grows and flowers with a luxuriance quite unknown to it in other situations, and hangs over the perpendicular edges with elegant shoots crowded with myriads of leaves. No other Thyme, and there are many, has equal merits. I suppose I shall be expected to say something about that overrated plant the Edelweiss, which is not much better than a common Cudweed dredged with flour; but the associations which it recalls, and the sentimental veneration with which it is regarded by the people in its native country, have tended to make it popular. Its cultivation is easy if planted on the under side of a projecting ledge of limestone, and its roots packed below with broken limestone and pressed against the upper surface. So treated it flowers freely, and ripens seed, by which it may be easily increased. There is a delightful alpine plant, a native of the Himalayan range, named *Cyananthus lobatus*, which thrives well when established. It is said to do better when not exposed to full sun, but I have it on both sides of the rockery and can see no difference between them. It dies off in autumn with flower buds and shoots still immature, and you would despair of seeing it again were you not told that this is its habit, and that you will see it again shooting up with increased strength late in spring. It likes a little nest of fine sandy peat, and must not be transplanted or divided, but young shoots of it strike readily at any time. *Houstonia cerulea* is a favourite with all who can grow it, flowering from spring to autumn; this, too, likes moist peaty spots sheltered amongst the rocks.

The best rockery *Hypericum* is *H. reptans*, which has flowers as large as a florin, and in other respects resembles our native *H. humifusum*, which is also a pretty rock plant. In growth it is like a trailing shrub, and you cannot divide its root, but must take small cuttings and have patience with them. The fine showy *H. olympicum* must be treated in the same way. A tiny upright shrub named *H. egyptiacum* I always house in winter and plant out in spring. Few persons would think of planting the common Scurvy Grass (*Cochlearia*?) on their rockery. It is a plant of so many forms and names that I dare not specify the variety, but it grows abundantly to the summit of the highest sea cliffs at Llandudno, and, besides having bright smooth leaves, produces an abundance of pure white flowers just at the time when spring begins to fight with winter. I cannot omit *Erigeron mucronatus* (also called *Vittadenia triloba*), which bears for six months in the year slender branches full of pink and white flowers neater than those of any lawn Daisy. It is increased readily by slips, of which you must strike plenty, not only for yourself, but for your friends, who are all sure to ask for it.

I can do no more than name *Achillea tomentosa*, the Golden-flowered Yarrow, which flowers from May to September; *Origanum pulchellum* and *O. Dictamnus*, producing branches full of flowers like pink Hops; *Tunica saxifraga*, feathering out with grassy foliage and myriads of light rose-coloured flowers. *Onosma taurica* requires a little more notice, being a plant of great merit, and being very easy to lose. Cuttings taken early strike easily, and you should strike as many as you can, for both young and

old plants are very apt to damp off. I have kept it out through the coldest and wettest winters by packing it well round with broken limestone, old mortar, or anything which can keep the crowns of the shoots from the soil and ward off stagnant wet. I propose next to mention a few annuals or tender shrubs with which the rockery may be filled up till a sufficient number of permanent occupants can be found.—C. WOLLEY DOD.

PROPAGATING BUSH FRUITS.

GOOSEBERRIES, Currants, and Raspberries are favourite fruits in all gardens, and in many they are the only fruits grown. Young, healthy, strong-growing trees always fruit more freely than old worn-out bushes, and it is a good plan always to keep up the stocks by propagating. Few amateurs can raise their Apple, Pear, Plum, Peach, and other trees, but all may raise their Gooseberry, Currant bushes and Raspberry plants. They are as easily propagated as any of our softwooded bedding plants, and many may find it profitable to insert a few cuttings every winter. As in most other plants, there are some very good varieties and many very inferior. Only good kinds should be grown for stock, and those not in possession of them should buy them and increase them afterwards.

As pruning will shortly be general, it is then the cuttings must be saved. Only the strongest and best ripened of the Currant and Gooseberry wood should be selected. Clean growths about 12 inches long are the most suitable. Each kind should be tied up in a bundle separately, and the cut ends must be placed in the soil to keep them fresh. Here they may be left until a wet day or any convenient time in the winter or spring, when they may be prepared for insertion. This is done by removing all the eyes or buds from the base upwards for about 9 inches, leaving three or four good buds at the top. The leading bud should also be removed to give the others a better chance of starting. In Gooseberries the spines may be left on the wood, as they help to keep the cuttings firm in the ground. They should be placed in rows 1 foot apart and 4 to 6 inches between the cuttings. About 3 inches of the wood beneath the ground is sufficient, and the soil around them must be made very firm. They must be inserted before growth commences, and by the time the parent bushes are in leaf it will be found that the cuttings are also green and nearly all producing roots. By autumn most of them will have formed several small shoots. If space can be afforded they may be transplanted the following spring, and by the end of the second year pretty little bushes will have been secured, and they may be transferred to permanent positions.

Raspberries are still more easily increased from rooted suckers, which may be secured without disturbing either the permanent roots or the canes which will bear next season's crop. They should be lifted with a spade, and they may at once be placed in their fruiting quarters. One or two canes to every root is sufficient, and where the young canes are growing in clump together they may be divided. Of all modes of growing the Raspberry we prefer to have them in rows, and to form these the young plants may be put in about a foot apart.—J. MUIR, *Margam*.

LIQUID MANURE FOR ORCHIDS.

UNDER this heading your correspondent "A. H." (page 423) has referred to a subject of great importance to gardeners, and Orchid-growers especially. It is a subject that has been neglected by many, and I am glad to see "A. H." drawing attention to it. It is very true that Orchids are nourished with the excreta of both birds and mammals. They are also nourished with decayed vegetation. I well remember when receiving an importation of Orchids, in which I had a number of *Cymbidium giganteum*, noticing a quantity of decayed leaves amongst the clumps, and on a little closer inspection I discovered that the old decaying pseudo-bulbs were doing service the second time. It is well known that after the old pseudo-bulbs have produced young growths they gradually lose their leaves and shrivel. In course of time these decay and form material for the roots. I found several of these old decayed portions pierced with living roots. I should not give liquid manure to weak-growing kinds; but, on the other hand, it could and is used with great advantage for many strong-growing species. Not only are terrestrial Orchids benefited by liquid manure, but many of the epiphytes also gain advantage by it. *Dendrobiums* for instance, that have filled their baskets with roots, are greatly benefited by being watered or dipped occasionally in weak liquid manure during the growing season, and I find it a good plan through the summer to syringe weak liquid manure amongst the pots that *Dendrobiums* are growing in. There are many other plants that would gain by

occasional supplies of liquid manure. *Calanthes* for instance, after they have filled their pots with roots may have it every time they are watered. *Pleiones* are encouraged by liquid manure after they are well advanced in growth; so, also, are *Cœlogynes* and *Cypripediums*, and I have given a slight sprinkling of Clay's fertiliser occasionally over the roots of *C. insigne* with good results. At one time *Cymbidiums*, for instance, were grown in sphagnum, peat, and charcoal only, but now most of the leading Orchid-growers pot them in strong loam, and the plants thrive much better in it.—W. K.

PRUNING, TRAINING, AND NAILING FRUIT TREES.

MUCH pruning, training, and nailing is often done in the summer time, but it is only temporarily performed then, and now it must be done carefully. Some gardeners prune and nail as soon as the leaves have fallen. Others do the work at intervals throughout the winter, while many leave it until spring; but this we do not approve of, as that season brings its own work, and when tree-pruning and nailing have to be done then the work is likely to be done hurriedly and carelessly. As a rule we have our pruning and nailing completed by the new year, much being done in November. This year we are not quite so early, having been engaged in other work that could not be performed in frosty weather. According to the winters we now have, open weather must be taken advantage of for ground work, and there is generally plenty of time for pruning and nailing. At one time we were led to believe that pruning in severe weather was injurious to the trees, but we have never found it so in practice. If the wood is well ripened it is surprising what frost it will bear, but unless this is the case it may be injured whether it is pruned during that time or not.

Pruning is generally considered a particular operation, to be entrusted only to experienced hands. Trees of little value might be pruned by anyone, but there are others which we trust to no one. There is a right way and a wrong way of doing every thing, and in garden practice this applies more to pruning than to anything else, as all hopes of next year's crop may be quickly destroyed by carelessness, and the symmetry of the tree may be quite destroyed. There must be two objects principally in view in pruning—one to retain or improve the vigour and shape of the tree, the other to secure fruit. Plums, Apples, Pears, and many other fruits bear best on good spurs. These are generally secured by cutting-in the young side shoots to two or three buds from the base. When once spurs begin to be formed on young trees long straight shoots grow from them every summer, and if these are cut-in about the month of August the buds left often become fruit or bloom buds; but when these young shoots are not removed in some of the previous months they must be removed now. As trees become old these spurs frequently assume large proportions, and in the end they have generally to be much thinned. This thinning may be done now; and if care is taken in pruning, many fruit buds may be left near the main stems, although several of the principal spurs be taken away.

Attention must also be kept to the manner in which it is desired to train the tree. Training does not affect pruning much, but pruning affects training, especially with standard trees, as their form all depends on the way they are pruned. Overcrowding the wood must be avoided. If great attention is given to this the trees will always look well.

Neglected trees which have not been properly pruned have generally much wood growing up from the centre, and to cut it out wholesale may end in ruin, but if it is removed by degrees much benefit may be the result. It is only now and throughout the winter that such trees can be taken in hand, and we would advise in all cases that their complete renovation extend over two or three winters. The great inclination of all trees is to grow tall, and this habit requires to be severely checked or proportions will be lost. In some few cases it may be desirable to allow trees to grow quickly, but as a rule I would never allow the leading branches of young strong-growing trees to remain longer than from 9 inches to 1 foot annually. This will be the means of producing robust well-spurred branches.

All trees and small fruit bushes are pruned on similar principles, cutting out shoots which are dead and dying, those with no spurs, and all the young wood not wanted to increase the tree. Strong young branches may be left to take the place of the old ones, but after the first year they should not both be allowed to grow together. It is only in very old trees, however, or young trees, where many young shoots or branches have to be left, as when once a tree is completely furnished with bearing wood it may be kept in good health and in a fruitful state for many years without continually changing the wood. This applies to both standard

and wall trees. Fruit trees in vegetable gardens should never be allowed to become very tall; about as high as a man can reach is a suitable height. When taller than this they injure many of the vegetable crops by the shade they cast. When it is intended to keep the trees as dwarf as stated they should be encouraged outwards, so as to become bushy and round. Shortening-back and thinning-out is the way to lay the foundation for this shape. Trees which are stopped at the same place year after year sometimes form a large cluster of short spurs, and when this becomes so large as only to be a great mass of leaves and no fruit the best way is to cut the greater part of the spurs away, and by disbudding—not stopping—in summer they may be prevented becoming so close again for some years.

When much wood is laid-in in summer care should be taken that the same thing is not done at nailing time in winter, as wall trees are as much benefited by plenty of sun and air about the fruit, leaves, and wood as standards are. Our Morello Cherry trees are the only trees we allow to retain young wood thickly. Plums, Pears, Peaches, and Apricots are treated on a different system, plenty of space being given them. Peach trees are the last to be pruned, as they are sometimes more liable to lose some of their young wood in winter than hardier fruits, and late pruning allows provision to be made for this. Other wall trees are nailed from now onwards as they are pruned. There is no great art in nailing, but there is a little taste wanted to distribute the branches properly. The inexperienced at nailing, as in pruning, are always inclined to fix a number of branches very close to each other and leave much space between others. Keeping the branches in the right direction from base to top, being careful with the fruit buds, not putting in two or more nails where one would do, and keeping the branches all at equal distances from each other, are a few of the main objects to bear in mind.—A KITCHEN GARDENER.

NOTES ON POTATOES.

PERHAPS I am dull, therefore cannot see the good results of Potato exhibits at local, general, or international shows. Admitting a good display of good "tateis" to be a great attraction, are they any the less mystifying to the uninitiated? To the initiated they are, to say the least, unedifying, as the kinds securing premier awards are known to fail in the most important consideration—viz., use. Exhibition Potatoes must be shapely, but that they are good for food is not apparent. I confess to being unable to comprehend the object of Potato shows, unless it be that Potatoes have attained to such a degree of excellence as to have no practical value. In what, then, consists their value? Happily show Potatoes have not received any mark of appreciation from the general public, whose requirements the grower finds is best met after the earlies are over by staple varieties. Taking Ashleaf in one of its many forms as representing early varieties in kidney, and Early Shaw or Early Oxford in round sorts; Matchless Kidney (Huntingdon), and Fortyfold of second early; Don, Rock, and Regent of late varieties, the new sorts have little value. The Ashleaf, Fortyfold, and Don date back more than fifty years, and though Champion be new it can only be classed as a form of Rock, which with Regent and Skerry Blue have been with us many years, and are still popular. The new sorts make little headway against the old favourites. Why? Certainly, not because "no variety of Potato will retain a robust constitution with good quality more than ten years," as stated by Mr. Pearse at page 426, and I must confess to not being able to see in what we are indebted to the raisers of new varieties. Some are good, but many fail in the most important particulars—viz., productiveness in combination with quality, whilst others are handsome but are indifferent croppers, or so poor in quality as to be only worth growing for exhibition.

Perhaps the half dozen varieties I shall name as being all that are necessary to a full supply of Potatoes of unquestionable excellence, may cause some to conclude that my experience is extremely meagre, in which case it will be instructive to secure for the readers of the Journal the benefit of their experience. My soil is light loam, and if there be any quality in a Potato it becomes apparent. Veitch's Ashleaf, which is not the same as Royal Ashleaf, often substituted for this variety; Yorkshire Hero, a form of Lapstone, with a better constitution; Dalmahoy, Walker's Regent, York Regent or Dunbar Regent, and Skerry Blue (the latter will probably be supplanted by Brinkworth's Challenge). The Regents and Skerry Blue are only suitable for field culture. Those that do not care for even half a dozen sorts will find Veitch's Ashleaf, Walker's Regent, and Dunbar Regent meet every want. I have omitted Champion, which, though a wonderful cropper, is, I consider, too coarse and strong-flavoured, and I never could see what difference there is between Scotch Champion and Champion Rock.

I set out with the intention of making some remarks on the sorts that I have grown, and this I will now endeavour to do briefly. For an early Potato Myatt's Prolific Ashleaf is as good as ever, cropping well, and of good table quality; but there are more small tubers in the crop than in Veitch's Ashleaf, hence the preference for that variety. Early Bird is very fine and prolific, with dwarf haulm, but it becomes diseased with me to such an extent as to preclude its growth. Gloucestershire Kidney and Huntingdon are second early sorts and capital croppers, but are much given to disease, for which reason with Bryanston Kidney, also a wonderful cropper, they have been discarded. Prince Arthur crops well, and, though good by September, keeps well also; but it is very much diseased this season, and generally is when the disease prevails. Its tubers are large and even in size, and the quality excellent. Early Rose, Extra Early Vermont, and Beauty of Hebron appear to be of one type, and though heavy croppers are of poor waxy quality, and not worth growing where quality is expected as well as quantity. Snowflake bears abundantly, the tubers being large and even; yet, though excellent in flavour, they lack flouriness, and from their whiteness when cooked are tempting. It is much subject to disease. St. Patrick, a great cropper, of sturdy growth, and for its size, which is of the first, is good in quality. It is a second early or main crop variety. Wormleighton's Seedling may be described as an improvement in quality on Magnum Bonum, being a magnificent cropper, and will be grown where bulk is the chief object. It and Magnum Bonum were very free from disease. Magnum Bonum is remarkable for everything but quality. Woodstock Kidney is handsome, a good cropper, and of good quality and early, being well worth growing. International, though perhaps the finest exhibition kidney, and an immense cropper, is of very poor quality. McKinlay's Pride, an early handsome kidney, not large, but very even in size, with a dwarf compact top, but the quality is only moderate; these were very little diseased. Late Rose, Fluke, Hundredfold Fluke, and Belgian Fluke are all great croppers and good in quality for late use. Burns' Seedling, which I admire very much, is a flattish round, or somewhat kidney-shaped, the tubers very even in form and of good size, there being a difficulty to obtain whole tubers for seed; growth dwarf and sturdy, quality excellent. This is a second early, a good cropper, not liable to disease, and keeps a long time. Early White Kidney is not so good nor so early as the other forms of early kidneys. Mona's Pride is a capital variety, and not so much grown as it merits. Bountiful, a red kidney, is very pretty, and though it crops well the tubers are too small; the fine nutty flavour is its chief merit, unless its fine form and colour make it unique for exhibition. Lapstone, in my opinion, is the finest quality Potato, and in light soil is first-rate in every respect as a second early, continuing good for a long time. There is no Potato I relish so much as this, and I have little trouble with disease, as the crop is lifted as soon as the disease spots appear in the foliage. The quality is not deteriorated even if the tubers be lifted when far from ripe, as the good properties are developed early.

Among round varieties Rector of Woodstock is very handsome and the quality excellent, but though there are plenty of tubers they are too small, not half the crop being large enough for table. Early Market has short haulm, but the tubers, though of superior flavour, are not large nor abundant. Porter's Excelsior is very handsome and proportionately useless. Red Emperor, very handsome, a moderate cropper, with quite as many small as there are tubers of a useful size, quality fair, its chief merit being in appearance. Victoria is all haulm in a wet season, but in a good season crops heavily and is excellent, but liable to disease. Schoolmaster is very disappointing, for, although it crops heavily, the tubers are much warted or carbuncled, and the crop is spoiled. Grampian crops heavily, the quality is good, but very much diseased. Radstock Beauty is a real beauty, a good cropper, and the quality fair. Vicar of Laleham is of sturdy growth, the tubers have plenty of substance, and are produced freely. Although the tubers are purple the flesh is beautifully white and first-rate for table; it is well worth growing as a second early or main crop variety, and will, I think, be in demand for market purposes. Beauty of Kent, a second early, has dwarf sturdy haulm; the tubers are very handsome, with a rough skin of a rosy pink colour; it appears a good keeper, crops moderately well, and is very free from disease. Bliss's Triumph is a second early, crops moderately well, and is handsome, with a quality fairly good. Bedford Prolific, another second early, cropping well; tubers good shape, and fine smooth skin, cooking capitally. Red-skinned Flourball never were anything but huge waxy lumps with me, but Vermont Beauty baked splendidly, and may be grown for that purpose, but is too large for steaming.—G. ABBEY.

YOUR correspondent "OLD TATER" has been rather unfortu-

nate in his experience of Potatoes. He finds very few of them good. He must be rather particular, or the soil in his district is not very suitable for the crop. To begin with, he says that he never tasted an Early Rose Potato that was eatable. I have several sacks of this kind grown on a piece of garden land near me, which are excellent in quality and entirely free from disease. Then, again, he speaks badly of Snowflake, whilst I have found it one of the best there is, but shall not grow it any more because it is so very subject to disease. Reading Abbey I have grown for two or three seasons, but it will not be grown any more. Magnum Bonum is the popular favourite here, and more of that kind will be grown in gardens next year than of all the rest of the Potatoes together. I had ten sacks, and only saw two or three bad tubers. The quality this year is very good, I would not desire better.

Some seasons it is not very good in the autumn, but improves in quality towards spring, and continues good to the very last. I can quite understand that on some heavy soils it may not always turn out well, and small gardens which are much shaded by trees are not favourable for producing tubers of good quality, but an occasional change of seed will help, with good cultivation, to improve the quality.—AMATEUR, Cirencester.

WINTER NELIS PEAR.

FOR upwards of sixty years this valuable dessert Pear has been grown in the gardens of this country, having been introduced from Belgium in 1818. The present popularity of Winter Nelis is sufficient proof of its excellence, and it holds its own as firmly as

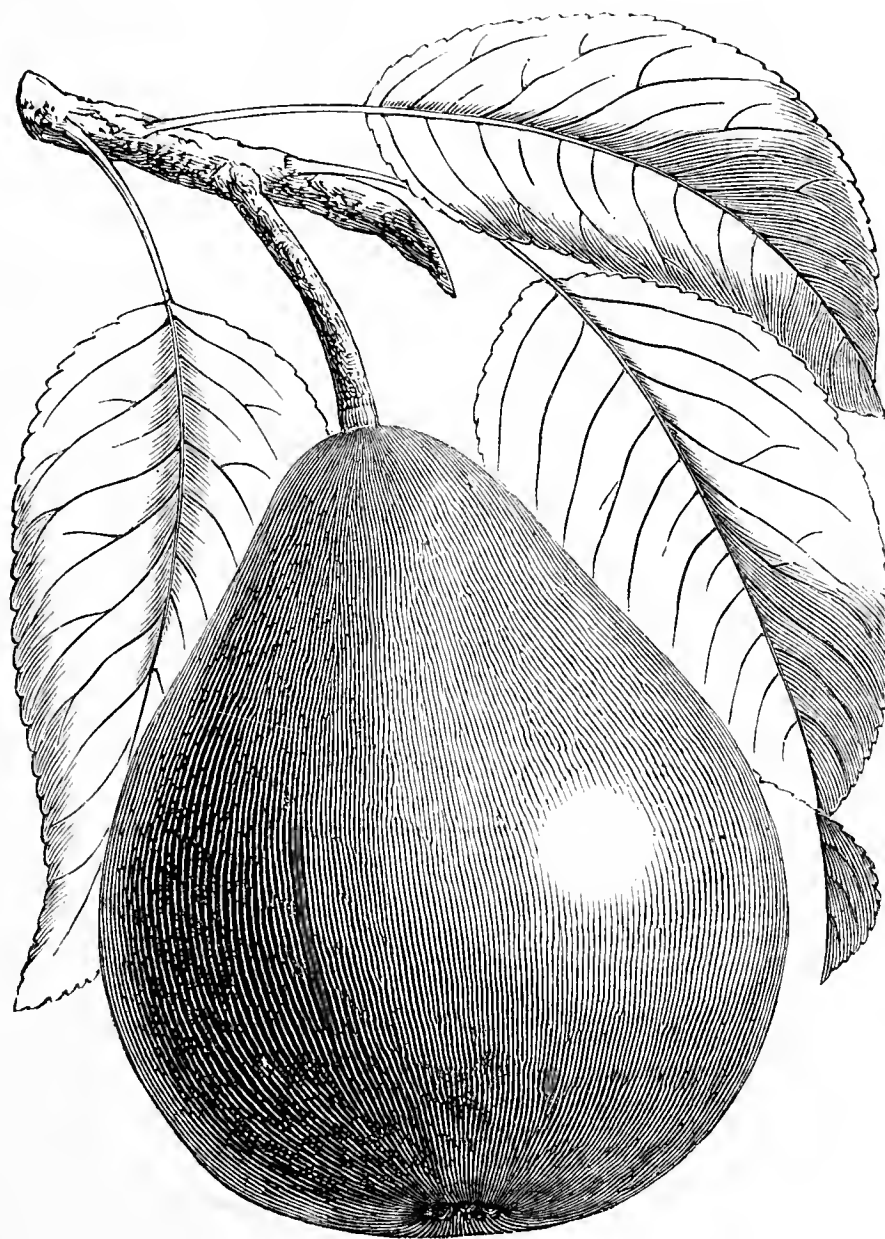


Fig. 79.—PEAR WINTER NELIS.

ever among the many varieties that rank as high-class Pears. This Pear is not only of superior quality, but the tree is hardy and bears freely, and there is no garden in which late Pears ripen that should not contain a tree or trees, according to the form in which they are grown and the demand for fruit. From cordons on the Quince stock we have gathered fruit of the first order of merit, and about equally good produce from large trees on the Pear. In favourable localities valuable fruit is produced by pyramids, but in most districts the trees should have the shelter of walls. The fruit with good management may be had in use over a long period. We have from one tree had a daily supply for two months, obtained by placing a few at a time in a high temperature, and the quality during the whole period has given great satisfaction. The following is the description of this fine old variety:—Fruit below medium size, roundish-ovate, narrowing abruptly towards the stalk. Skin dull green at first, changing to yellowish green, covered with numerous russety dots and patches of brown russet, particularly on the side next the sun. Eye open, with

erect rigid segments, set in a shallow depression. Stalk from 1 to 1½ inch long, curved, and set in a narrow cavity. Flesh yellowish, fine-grained, buttery, and melting, with a rich, sugary, and vinous flavour, and a fine aroma.

PREPARING BORDERS FOR ROSES—SELECTION OF VARIETIES.

WHERE it is intended to make new beds or borders of Roses the work should be commenced in earnest, having the ground attended to in draining if this be necessary, and in trenching as deeply as the good soil will allow. In shallow soils, instead of bringing the bad soil to the surface it should be well loosened with a pick, and some partially decayed manure mixed with the upper and better soil. Light soils will be much improved by an application of clay in small pieces, and those long broken up are greatly benefited by working in some fresh turfy loam. It is hardly possible to have the soil too rich and deep for Roses, the resulting

flowers being proportionate to the provision in the soil for the growth of the plants. Light and shallow soils should have material added that will increase their power of retention; cow dung may be mentioned as cool and moisture-holding, and such soils will suit Roses on their own roots where those on the Briar can hardly exist.

Varieties that succeed on their own roots and make effective growth are the following. Hybrid Perpetuals, red or crimson—Charles Lefebvre, Mme. Moreau, Duc de Rohan, Annie Wood, Comtesse d'Oxford, Duke of Edinburgh, Dupuy Jamain, Général Jacqueminot, François Michelin, Etienne Levet, Maréchal Vaillant, Pierre Notting, Prince Camille de Rohan, and Sénateur Vaisse. Shades of rose—Captain Christy, Antoine Mouton, La Souveraine, Madame George Schwartz, John Hopper, Hippolyte Jamain, La France, Emile Hausburg, Pauline Talabot, Thomas Mills, Reine du Midi, Marquise de Castellane, Marquise de Chambon, Mr. Veitch, and May Turner. Pink—Lyonnaise, Duchess of Edinburgh, Comtesse de Jaucourt, Abel Grand, Baroness Rothschild, and Princess Beatrice. White or blush—Madame Roland, Madame Lacharme, Baronne de Maynard, Bessie Johnson, Coquette des Blanchés, and Olga Marix. China Roses make fine beds, and should be on their own roots; the common or Monthly, blush, is fine for effect. Mrs. Bosanquet, flesh; Fabvier, carmine; Cramoisie Supérieure, crimson purple; and Louis Philippe, reddish crimson. Baronne Gonella (Bourbon) also does well on its own roots; also Gloire de Dijon and Cheshunt Hybrid. With a good mulching over the roots Roses on their own roots are safe no matter how severe the winter, and equally so are those on the Manetti, as when cut down to the mulching they start freely in spring from the base; indeed, our losses in standards have been so great that we shall have no more of them, and in good soil advise our friends to have dwarfs on the seedling Briar or Manetti, and plant so that the junction of bud and stock is 3 inches beneath the surface.

For general purposes it is preferable to grow the free-blooming varieties in quantity, of which the following may be mentioned. Hybrid Perpetuals—Alfred Colomb, Annie Laxton, Baroness Rothschild, Boule de Neige, Charles Baltet, Charles Darwin, Charles Lefebvre, Comte Raimbaud, Dean of Windsor, Duke of Connaught, Dupuy Jamain, François Courtin, François Michelin, Général Jacqueminot, Harrison Weir, Jean Souper, John Hopper, La France, Madame Devert, Madame Victor Verdier, Magna Charta, Marie Louise Pernet, Maréchal Vaillant, Marquis of Salisbury, Marquise de Castellane, Marquise de Ligneris, Miss Poole, Mrs. Veitch, Pauline Talabot, Prince Arthur, Princess Mary of Cambridge, Richard Laxton, Sénateur Vaisse, Sir Garnet Wolseley, and Thomas Mills. Although most of the above are fragrant, the following are highly so—Bessie Johnson, François Courtin, Harrison Weir, Madame Thevenot, Marchioness of Exeter, Miss Hassard, Miss Poole, William Jesse, Duchess of Edinburgh, Rev. J. B. M. Camm, Madame Oswald de Kerchove, and Mrs. Jowitt. The Moss Roses are indispensable, especially in bud. Mrs. W. Paul and Perpetual White are good in the Perpetual class. Some of the summer Roses, though now at a discount, are really beautiful, and especially valuable in cold localities. Of Provence none are more fragrant than the common or Cabbage. De Meaux valuable for its earliness. Crested Moss very beautiful, and Unique or White. Of Moss Roses Lanei, Angelique Quetier, and Marie de Blois are exquisite in bud; common Celina and White Bath are also beautiful.—G. A. G.

RESPONSIBILITY OF GARDENERS.

"SINGLE-HANDED'S" apologetic reply on page 471 is not quite satisfactory. He is unable to state, apparently, that he has had the opportunities of judging of the matter in dispute that I spoke of. If he had he would never have insinuated that many-handed men won prizes because they produced the largest plants. It is not so; and, besides, the schedules are usually so arranged that all exhibitors have equal chances of obtaining prizes. As for small places not having houses big enough to grow specimens in, the excuse will not do, for such places are not so much distinguished by the size of the houses as by their fewer number only. In one of the most noted places for specimens in England, a few years ago, the houses were so small that the stages were taken out and the plants grown on the floor to give them head-room, and very well they looked so arranged. May I also point out that the Eskbank people do not reckon the Edinburgh Show a local one? And if "SINGLE-HANDED" calls "owre the Border" local, he must attach a much wider meaning to the word than other people, seeing it is nearly one hundred miles off. The only local show is the one referred to by me, and his friend at Eskbank does exhibit there, and seldom, or never, anywhere else, and he is

not more successful than his neighbours. This is said without reflecting on his admitted abilities. It is not I, but "SINGLE-HANDED," who has introduced names and places with the object of praising one and disparaging the other, the last just as plainly indicated as if they had been named, and without either reason or provocation on the writer's part; and I simply want to show that your correspondent's statements and conclusions are not correct. —ANOTHER MANY-HANDED MAN.

SCRAPS ABOUT FRUIT.

PITMASTON DUCHESS PEAR.—Again has this Pear failed to develop any of that richness of flavour which it is said to possess, and I have reluctantly come to the conclusion that it will never do so at Oldlands. Why? There are seven cordons of it planted in a deep rich border of our light soil, specially prepared for the culture of Pears and Roses. They are remarkably vigorous, have reached the top of the wall before many others, and the fruit was large and handsome—quite as large as the size mentioned in the "Fruit Manual" by Dr. Hogg. I may add that due care was taken to gather it at the proper time, and it was carefully watched and tested during the process of ripening in the fruit-room. Is it a question of soil? If so, I should be glad to learn the nature of the soil in which it is found to succeed. Or perhaps the stock upon which it is grafted has some influence on the quality of its fruit; all the cordons of it here are upon the Quince. I have not tried the effect of ripening it in a warm room, which is undoubtedly beneficial to some Pears, notably to the fruit of Besi Vaet.—EDWARD LUCKHURST.

THE BEST TWELVE PEARS.—Jargonelle, Williams' Bon Chrétien, Marie Louise, Fondante d'Automne, Comte de Lamy, Seckle, Doyenné du Comice, Winter Nelis, Jewess, Knight's Monarch, Glou Morceau, Madame Millet. These are chosen partly from an extensive collection growing here, and also from observations in many parts of the country, as probably the best, or, at any rate, an excellent dozen to recommend for general culture. To make such a selection is by no means an easy task, so many sorts of the highest excellence having to be left out. One has in selection to remember the known effects of soil, stocks, and climate; growing experience and more intimate knowledge of the peculiarities of different sorts serving to render us more cautious in pronouncing this to be good, that to be bad. Twenty years ago I was much more confident as to the merits of such Pears as were known to me than I am now; but, then, rash youth has its day with all of us.—SUSSEX.

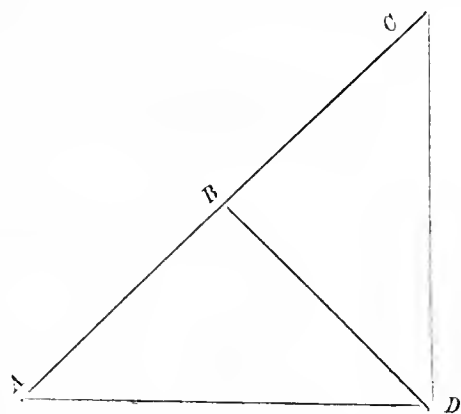
RIVERS' EARLY PROLIFIC PLUM.—In Mr. George Bunyard's work on "Fruit-Farming for Profit," it is stated of this Plum that "it is a very weakly grower, and never makes a big tree." Now, the result of my nine years' culture of it is certainly totally at variance with this statement, for several pyramids planted side by side with numerous other kinds of Plum have all grown with a vigour so uniform and uncommon as to render them as conspicuous for size as they are also for symmetry. They are kept closely pruned, and so the height was restricted to feet; but to judge from the vigorous shoots which they subsequently made they would have been twice that height by this time had they been left unpruned. It is a singular fact that the soil in which these trees have grown so well and borne heavy crops of fruit is poor and thin, but well drained, for which reason I have for some years regarded this Plum as one of the most profitable to plant for market purposes in any soil. The fertility of the soil in the neighbourhood of Maidstone is notorious, and I am anxious to learn something of the experience of other fruit-growers in that district about a matter that is of undoubted general importance.—A KENTISH GROWER.

PEARS NOT KEEPING.—Pears are keeping very badly with us this year. Marie Louise became spotted and soon were decayed, and many others have gone in the same manner, and Beurré Bachelier with others that are not ripe until December are now (November 18th) quite ripe, indeed over-ripe. Hacon's Incomparable has borne a full crop this year, doing admirably on the Pear stock near a west wall, and is one of the very best in its season—viz., November and December. General Tottleben has been better than usual, the fruit being of better form and less gritty than I have found it hitherto, and not liable to decay at the core. Beurré Diel is also first-rate, not at all gritty, but melting and good. Bergamotte Esperen is already ripening, so that the Pear season appears likely to be much shorter than usual as regards the keeping sorts, which is the more to be regretted as the crop was light.—G. A.

APPLES FOR DWARF CULTURE.—It is essential that trees for this purpose be free and early bearers. Some that I have found to answer this description are Stirling Castle, Keswick Codlin, Jolly Beggar, Betty Geeson, Cellini, Ecklinville Seedling, Small's Admirable, Norfolk Bearer, Nonesuch, Large Hunthouse, Winter Hawthornden, and Winter Majetin: those are kitchen. For dessert—White Juneating, Irish Peach, Devonshire Quarrenden, Kerry Pippin, King of the Pippins, Cobham, Cox's Orange Pippin, Court of Wick, Margil, Braddick's Nonpareil, Dutch Mignonne, and Sturmer Pippin. The soil here is light loam, the situation elevated 540 feet above sea level, in North Yorkshire.—YORKSHIRE CULTIVATOR.

AREAS OF GLASS STRUCTURES.

IN your notes (page 473) of Mr. Fawkes' first lecture at the Crystal Palace it is said that "with the same width and the same pitch, a span and a lean-to roof contain the same area." Though this is correct it will convey a wrong impression to many, who will suppose that by the words "contain the same area" cubical contents are meant. There is the same superficial area of roof in A C as in A B D, and the same ground space is covered, but the contents of the span are only half that of the lean-to. I find that many gentlemen and gardeners have a great difficulty in understanding this, as they mostly say that a 16-foot sash lean-to covering 13 feet wide, being the same width as an 8-foot sash span roof, must have the same contents, or "area" as they frequently call it. The matter may seem trifling, but it is a common error and may be worth explanation.—B. W. WARHURST.



WHAT PLANTS USE.

(Continued from page 474.)

SULPHURIC ACID.—One of the peculiarities of cow urine is the quantity of sulphuric acid it contains. Like potash, this is present in much larger proportion in the liquid than in the solid excrements of animals. It is met with in sulphate of ammonia, which is a very stimulating manure, and owes its rapid action chiefly to its ammonia, but there can be no doubt that the sulphur it contains is also of benefit to many crops. It is also met with in sulphate of lime or gypsum, and is much used on the Continent for cereals and in America for Potatoes. Its use in this country is nothing to speak of; why, we know not, for if accounts are to be believed, the Germans and the Americans find it of great service. In some accounts before us we read of the addition of ten bushels per acre of "plaster" doubling the crop. Unless this be "tall" talk, we must suppose that the undressed soil must have been singularly deficient in sulphur, or lime, or both—a by no means uncommon occurrence in many of the now impoverished lands in the United States.

In dissolved bones, or superphosphate of lime, it is also largely present, and possibly the use of these has helped to limit the use of "plaster," gypsum, or sulphate of lime, by which names the substance is known.

LIME.—This is such a well-known substance, and its use so generally understood, that little need be said in this place about it. It may be well, however, to recapitulate briefly the effects of lime on soil. (1) Applied to heavy clay land lime tends to lighten it, make it more easily worked, drier, and therefore warmer and the crops earlier, adds plant-food to the soil, and by its chemical action prepares many other unavailable plant-foods present in the soil, and so conduces to an earlier, more vigorous growth. (2) Applied to old garden land rich in organic remains, it hastens their decay, and so liberates the mineral salts they contain, thus preparing them for being utilised by the growing plants. In practice it is often found that an application of lime to land long manured will produce greater crops for one or two seasons than will an application of ordinary manure. (3) Applied to sour land it does much to cure the sourness by combining with the acids and forming salts which are either available as plant-food, or, such as are soluble, easily washed from the soil by the rains which pass through into the

drains. Cultivators will require to imitate this cleansing action of rain in the case of fruit-tree borders under glass by drenchings of water which will pass through the soil and into the drains, carrying the hurtful matter along with it. Readers of the Journal will recall instances of Vines and other indoor fruits being permanently improved by an application of lime. In the case of borders where there is reason to believe that sourness exists, an application of lime is a cheap and easily applied remedy. (4) Applied to lawns (and grass land generally), it does much to destroy moss, which, by reason of the "survival of the fittest," may be spoiling the grasses, and it does much to nourish many of the smaller-growing kinds which cannot thrive on land where lime is absent, or nearly so—a state of matters everywhere existing where for long years lawns have been continually robbed by having the mown grass, with all the mineral matter contained in it, continually removed, and robbed by having its lime and other matters continually washed beyond the reach of the roots by the rains. Lime applied at intervals maintains the turf in good condition. In our case, we find phosphoric acid, potash, and nitrogen in some form necessary in addition. These we supply in the form of bone-meal and lime sprinkled on in spring, and a dressing of urine in wet weather during winter. This application we have found to have an almost marvellous effect on worn-out lawns.

Where slugs abound lime may be made to kill "twa dogs wi' ae bane." When newly slaked and sprinkled over ground where these abound it will destroy them, and afterwards prove beneficial to the soil. In applying lime to inside borders it is best to use newly slaked lime mixed with water to the consistency of milk. When newly slaked it is soluble in water, and, applied as we have recommended to the surface of borders loosened to secure its admission, there is no trouble causing it to reach every part of the border. Sprinkled on the border it quickly assumes the insoluble form, and is less readily diffused through the soil. It, however, even in that state never fails to descend and prove beneficial, although the effects are less rapid. When newly burned wood ashes are to be had in quantities, and regularly applied to the soil, liming is not necessary, because wood ashes contain a plentiful supply, not of lime only, but of all the other mineral elements of plant food.

SODA.—This is present in all natural manures. It is available in the form of common salt and nitrate of soda, or in the form of soda crystals. Possibly the most economical method of applying it to soda-loving plants or ground deficient in soda is in the form of salt to land rich in decaying organic matter, and in the form of nitrate of soda to new land which has little organic remains. Water from laundries contains much soda, and water containing soda is a valuable manure. Applied to Spinach and Strawberries, both "soda plants," it produces an astonishing result on exhausted land.

Here we have a quantity of Grove End Scarlet Strawberries, which bear wonderfully on a piece of very thin very poor ground, and manured with soapsuds only. For three years we have given a portion of the plot cow urine for manure, a portion we have given soapsuds to, and to a third we have given nothing. We find that the part dressed with urine produces a ranker growth of leaves than either the undressed portion or the portion dressed with the suds; and that the last, while producing a more robust growth than the undressed portion, and less than that dressed with urine, produce double the amount of fruit foot for foot than either. The urine, we find, scarcely increases the yield of fruit; its strength is expended on leaves. This we attribute to the nitrogen. Common salt in our district applied to Strawberries always tells favourably on the crop, but more especially on well-manured land; but even on poor ground its effects are great. On poor land we find nitrate of soda preferable, but not on rich; in that case the leaves grow too much.

We ought to say that our situation is inland. In districts influenced by the nearness of the sea soda in any form is a useless addition, for it is deposited by the rain, and it is, therefore, unnecessary to apply it artificially. On light inland soils it seldom fails to produce favourable effects.

Common salt is used by all plants, and is always present in common manure; but, being very soluble, it is being continually washed from the soil, and its addition, either by the rain or otherwise, becomes necessary to the best results. In America it has been found that salt and soot alone produced better crops of Potatoes than any other manure. As Potatoes require very little salt, we can only suppose that where salt produces effects like that referred to it must have been singularly deficient in the soil and manure alike, and that all the other matters necessary were present in moderate abundance. Like lime, salt is easily carried away, and, like lime, it is comparatively inexpensive, and always repays with high interest its application to land in inland situations.

SILICA.—Silica is always present in greater quantity in ordinary manure than garden plants require, and most soils contain an unlimited amount of it. We need not, therefore, say anything under this head.

IRON.—This, needed in such small quantities, is always present in stable manure, and is being continually added to soil worked by iron tools by their wearing that it is never found necessary to add iron to soil. Indeed the trouble is too often to dispose of it, for in many soils it is present to an injurious extent.

MAGNESIA.—The only form in which magnesia is to be had in the markets is as Epsom salt. Epsom salt is composed of sulphuric acid and magnesia. This compound has been applied with advantage to farm crops, but I do not know of any experiments with it on garden crops. Where magnesia is deficient its application would doubtless do good. In an impure form this salt is to be had very cheaply.

As we said before, there are other mineral matters which enter into the composition of plants, but those we have named are those which are generally considered of importance and to be had in the market. All the matters required by plants are to be found in ordinary manure and in all fertile soils. In a concluding paper we shall say something on soils and some of their peculiarities. —SINGLE-HANDED.

(To be continued.)



IN reference to our remarks upon RHODODENDRON PRINCESS ALEXANDRA on page 476, Mr. Taylor informs us that the parents were R. Princess Royal and R. jasminiflorum, not R. Brookei as we stated.

— RELATIVE TO BUSH FRUIT TREES FOR YORKSHIRE GARDENS, a Yorkshire clergyman, who has had considerable experience in fruit-growing, informs us that he will readily aid a "YORKSHIRE RECTOR," who recently sought information on this subject, if he will communicate with him through this office.

— IN a note referring to VAPOURISERS, Mr. Warhurst asks "If Bentley's water-spray would answer the purpose described by 'A LOVER OF HORTICULTURE' (page 449) for vapourising?" Another correspondent, "J. R." directs attention to Keel's blight-destroyer, which is applied through a vapouriser, and asks if any of our readers have proved its merits.

— A NORTHERNER finds "SALVIA SPLENDENS very useful at this season of the year. Many gardeners plant it out, but the best way is to strike cuttings early and grow them on in pots, keeping them well stopped. It is not of much use for cutting, as it does not last long in that state; but it is for conservatory decoration that I find it so useful, the colour is so telling."

— "ANOTHER plant worth growing at this season of the year is SCHIZOSTYLIS COCCINEA. It is more often seen planted out during the summer, but I find it thrives best when potted, which should be done in April, placing the strongest plants together so as to have them all in bloom at once to make a show. Stand the pots in a shady place for the summer, keeping them well supplied with water."

— A PAPER advocating the use of river water for domestic purposes, and explaining a very simple and "self-acting" method of rendering it absolutely pure, was published a year ago by Mr. Shirley Hibberd under the title, "WATER FOR NOTHING." A considerable impression having been exhausted, Mr. Hibberd withdrew the pamphlet, and it was reported "out of print." The demand for it continuing, he has now yielded to the persuasions of his publisher, and a re-issue of the paper may be obtained from Mr. Effingham Wilson, 11, Royal Exchange.

— A CORRESPONDENT writes that in the Cambridge Botanic

Garden several annuals were conspicuously valuable in pots for greenhouse decoration during the autumn. They were CALLIOPSIS DRUMMONDI, SCABIOSA ATRO-PURPUREA, LOASA VULCANICA, and CUPHEA ZIMAPANI. The two last are still in flower, and the Cuphea being of fine purple colour is much admired. The Calliopsis has taken particular attention, perhaps from some novelty in its use as a pot plant, because out of doors it has not been the subject of remark. It is at least a bright flower, always useful for cutting wherever grown.

— MR. J. C. BARNHAM of Norwich writes [as follows respecting DAPHNE INDICA—"I have often seen it stated that Daphne indica requires to be grafted on stocks of D. Mezereum; but so far from this being absolutely necessary, I find that cuttings strike very readily, and the young plants so obtained flower the same year. Possibly this hint may be of service to some of your readers who grow this fragrant and useful plant."

— PARTS 13, 14, and 15 of Messrs. Cassell's re-issue of "PAXTON'S FLOWER GARDEN" contain several handsome coloured plates, with descriptive and cultural notes, and a continuation of the gleanings and original memoranda. The coloured figures represent Odontoglossum Cervantesii, Oncidium hæmatochilum, Bejaria coarctata, Hoya ovalifolia and H. pallida, Phalaenopsis intermedia var. Portei, and Chionodoxa Lucilæ. The last-named is especially well executed as regards the form and colour of the flowers and the general habit of the plant, but the leaves have a rather unhealthy yellowish appearance.

— MR. G. ABBEY writes—"The Rose has been so much improved in recent years that we hardly dare venture to write complimentary of an old favourite; but some notice is deserved by the still popular common CHINA or MONTHLY ROSE (Rosa indica odoratissima), for it has a profusion of blooms in succession from June to November. The blush-tinted or delicate pink buds are very beautiful, making a grand display with its many companions. Indeed this Rose makes a charming bed worthy of the most favoured position: in fact it is good in summer when Roses are plentiful, and is supreme in autumn when others are uncertain, more blooms being produced on a plant in November than is present on dozens of Hybrid Perpetuals. It is hardy; but if the weather is so severe as to kill the head, shoots are produced from the base."

— THE ROYAL HORTICULTURAL SOCIETY OF IRELAND held their Winter Exhibition of Chrysanthemums and fruit on Thursday last in the new Concert Hall, Exhibition Palace. Chrysanthemums were well shown in the chief classes, the principal prizewinners being Francis Low, Esq., Avonmore, Stillorgan; Richard Pim, Esq., Stradbroke Hall, Blackrock; Alexander Comyns, Esq., Ardcaune, Glenageary; and the Rev. F. Tymons, who contributed particularly fine blooms. Fruit was chiefly shown by C. S. King, Esq.; Captain Shulldham, Gortmore; Viscount Powerscourt; Charles Cobbe, Esq.; and Lord Annaly, Woodlands, Clonsilla.

— A CORRESPONDENT writes as follows relative to THE SEASON IN DURHAM—"The weather has been far finer lately than it was in what ought to have been the harvest months. In August and September we scarcely ever had twelve hours of fair weather; in October we had a continuous succession of disastrous gales and cold weather. Since November came, however, with its "brief summer of St. Martin's," we have had fine bright bracing weather, with the thermometer often as high as 66° during the day, and, as if to make this November more remarkable, we have not had a single fog. The benefit to all people engaged in the cultivation of the land is incalculable. Fruit prospects are being benefited very materially by the bright sunshine; while farmers are enabled to bring up arrears of work and get large breadths

of corn sown on land in good condition, which was not the case a month ago. Early spring flowers are coming into bloom in all directions, while many wild flowers seem to be deceived by the fineness of the weather."

— THE annual display of CHRYSANTHEMUMS AT GARBRAND HALL, EWELL, the residence of Mrs. Torr, is this year quite as attractive as usual in general effect, although, like many other growers, Mr. Child has experienced a difficulty this season in obtaining blooms of first-rate size and substance. After inspecting the necessarily formal arrangements of Chrysanthemums at the numerous exhibitions, a tasteful and unique mode of displaying the beauties of those useful plants, such as that under notice, is especially welcome. The method adopted by Mr. Child has been frequently described, but as some readers may be unacquainted with it a brief reference may be useful. A span-roofed Peach house 100 feet long has a path down the centre, and on each side of this is a trellis about 6 feet high, with arches at intervals of a yard or two. Over the trellises and arches the plants are trained, and as the majority are flowering very freely the effect is very beautiful. Some fine clusters of snowy white Mrs. G. Rundle are particularly noticeable, numerous other varieties being represented.

— "AN INHABITANT OF FARLEIGH" writes—"A few days ago we lost a horticulturist to whom we are indebted for one of the most popular fruits sent to market in its season. Mr. JOHN CRITTENDEN of East Farleigh died at the great age of ninety-four, who, as the introducer of the Farleigh Prolific Damson, conferred a great boon on the community at large. The deceased was a man much respected by all who knew him, and his name has long been associated with the Damson in question, of which thousands of bushels are yearly sent to market, and its popularity is still increasing, thousands of trees being sold each year; but some particulars regarding it having appeared in this Journal a few years ago need not be repeated here. Suffice it to say that Crittenden's Damson is one of the standard fruits of the day and neighbourhood, and those having trees of older varieties are having them cut down and grafted with that kind, and even many Plums are so treated. So that Mr. Crittenden lived to see his protégé firmly established in public estimation and widely spread. A near neighbour of the writer put in upwards of ten thousand young plants of it last winter, and many others have quite as many, so that its popularity is not expected to diminish. The records of some of the stories of its prolificness would almost appear to border on the marvellous, yet it is only a matter of plain fact; and in the parish where it originated it is both the rich man's tree and the poor man's also, and the traveller can hardly move 20 yards without seeing one."

— A PRESENTATION of £1000 together with a gold watch to Mr. BRUCE FINDLAY, and another for Mrs. BRUCE FINDLAY, was made on the 24th ult. in the Town Hall, Manchester. The Mayor (Mr. Alderman Baker) presided. The Mayor, in his introductory address, spoke of the progress which had been made in connection with the Botanical Society since Mr. Findlay's appointment as Curator in 1858, and congratulated the members upon the altered and improved condition of things at the present time, as compared with the old régime, at which time he (the Mayor) became a member of the Council of the Society. The state of the gardens and the subscription list had undergone a considerable change for the better, which was owing in a very large measure to the labours of Mr. Findlay, aided by the members of the Council, and more than all, perhaps, by Mr. Joseph Broome. Mr. Broome cordially thanked the Mayor. Mr. Findlay had been before the people of Manchester for three and twenty years, and a more assiduous man in any position he (Mr. Broome) had never known. Subscriptions to the testimonial were sent in so bounteously that the Committee began to find the list was

assuming greater proportions than they had ever anticipated. The result was that 270 subscriptions were received, amounting altogether to £1106 19s. 6d. Mr. Broome then read and presented the address, which had been engrossed and illuminated on vellum and encased in morocco, and likewise handed over to Mr. Findlay a purse containing a cheque for £1000, and the two gold watches and chains. The following is the text of the address—

To Mr. Bruce Findlay, Curator and Secretary of the Royal Manchester Botanical and Horticultural Society.

DEAR SIR—Your career as Curator of the Manchester Botanical Society commenced in the year 1858, twenty-three years ago.

The zeal and energy which you have exhibited for the prosperity of the Society, as well as for the general extension of the science of botany, floriculture, and horticulture, have been watched with interest by your numerous friends.

Your suggestions to the Council of the Botanical Society have been characterised by rare judgment. The annual Whitsuntide exhibitions converted a small local exhibition into one of an extensive national character, with the result of giving pleasure and instruction to forty or fifty thousand visitors, and also causing a considerable improvement in the financial position of the Society. The autumn international display held by the Society in 1873 was only second to the grand international Exhibition which took place in August of this year in celebration of its jubilee. This latter Exhibition your friends recognise as your crowning achievement.

In the position of Curator and Secretary of the Manchester Botanical Society you have at all times laboured devotedly, and your friends feel that the present year is an appropriate time to mark the esteem in which you are held by them, not only by reason of those works to which allusion has been made, but for the invincible resolution, quiet perseverance, and business-like qualities you have displayed during your long and arduous career. Your health suffered somewhat from the labour and anxiety for the success of the recent great Exhibition. We hope, however, that the beneficial influence of this Show, and the appreciation we now acknowledge with pleasure of your work, will be some solace to your mind, and will aid you in your restoration to health.

As a token of the esteem of a large circle of friends, we desire your acceptance of a purse containing £1000, and the accompanying gold watch and chain, which we hope may continue to record for you the flight of time during many years of health, happiness, and prosperity. We also desire you to present our best wishes to your wife, together with the gold watch and chain provided for her.—We are, yours faithfully,

(Signed)

THOMAS BAKER, Mayor of Manchester.

JOS. BROOME, Chairman.

SAMUEL BARLOW, Treasurer.

ROBERT TAITT, Hon. Secretary.

Town Hall, Manchester, November 23rd, 1881.

Mr. Bruce Findlay cordially thanked the many most generous friends who sent him so munificent a testimony of their respect and esteem, but stated, however, his future action must show such thanks as he could not speak. The substantial and beautiful gifts were valued by him and his wife, but they prized still more highly the friendship and confidence with which the gifts are stamped.

THEORIES IN GRAPE CULTURE.

THE question raised by your able correspondent Mr. Iggulden under the above heading has more than a passing interest for me, inasmuch as some eight or ten years ago a short note of mine, kindly inserted in your pages, failed to bring forward any correspondence on either side. In that note I tried to point out what I considered the folly of encouraging Vines to grow as advocated by Mr. Bardney and then cutting it all away in the autumn. The storing of sap goes on most at the tips of the young rods, as anyone can tell by the thickening of the wood and the prominence of the eyes, and therefore when cut away the Vine is robbed of nearly the whole season's work. I generally leave theories for abler hands to discuss; but when we read such advice as that given by Mr. Bardney and "SINGLE-HANDED," I think practical experience should have something to say as well as science. Mr. Bardney grows his Vines on economic principles; he makes them self-supporting by burning the prunings and manuring the border with the ashes. The little handful of ashes his pruning will produce may be very good so far as it goes, but it is but a "drop in the bucket" of what they require, and will in no wise compensate for the stored-up sap he has consigned to the flames. "SINGLE-HANDED" contends that the sap is stored in the "underground stems" (roots is too common a term for some folks), but if half the roots die in consequence of cutting off the

top, or from being in a cold wet border, what good does it do the Vine?

My practice for the past dozen years has been to restrict the young rods of Vines to an annual growth of about 8 feet, cutting away only about 2 feet at pruning time. The laterals are allowed to meet, but not to become crowded, and are shortened to two or three joints as soon as growth ceases, so that the storing process may be concentrated in the rod itself as much as possible. Under such treatment it is reasonable to suppose that the Vines will make less gross roots, which will be most likely to winter well, and there is the least possible amount of stored-up sap removed by the knife. All things considered, I think this is quite as economical as Mr. Bardney's plan. If, when I burn the prunings, I have a little less ashes to return to the border, he must admit that I have taken a good deal less out of it. A restricted growth and moderate pruning is more in harmony with Nature than this natural growth and hard pruning.—R. INGLIS.

No doubt Mr. Iggulden has endeavoured to fortify his position by strong arguments, and that good Grapes have been produced under the system he advocates I do not deny. Nor do I wish to assume that all are radically wrong in their ideas of growing Vines that do not follow the dictates of those who grow them on less restricted principles. I am always open to conviction, and no one is more willing to reject any system entertained—from whatever source it may be advanced—for one likely to prove of greater advantage and produce more satisfactory results. In the present discussion I fail to see the disadvantages resulting from a good quantity of roots. It is unnecessary for me to say that a Vine makes roots in proportion to its leaves, and that the canes are in proportion to the extent and vigour of their roots, and, therefore, better able to produce and bring to perfection a satisfactory crop than a Vine is capable of doing when restricted.

I could mention names of growers who practise a restricted system and have largely advocated and recommended it from time to time, whose young Vines when they bore one or two fair crops of fruit were exhausted and declined in vigour yearly and had to be removed. Other instances I can point to where Vines in the hands of good Grape-growers and exhibitors have been very unsatisfactory after a few years, the Vines not proving their lasting properties when subject to restriction; and the same has been said of them—as expressed by Mr. Iggulden in relation to those grown on unrestricted principles, "they have had their day."

The principles of unrestricted are largely practised by many in this neighbourhood, and in the majority of instances the Grapes are superior to those grown under restriction. I should like Mr. Iggulden to see a house of Muscats, when the fruit is hanging, not many minutes' walk from here. The Vines are about fourteen years old, and have been grown on the system your correspondent condemns. This house is described thus, on page 159 of the Journal for September 4th, 1879:—"The crop is a grand one. The bunches commence close to the ground; indeed some of the finest of them nearly touch it, and they hang with great regularity all over the house, but as a rule those on the south roof are the finer. They are nearly all of handsome tapering shape, and range from 3 lbs. to 4 lbs. in weight." "A fact worthy of notice is the free growth of foliage that is permitted and its disposition. The roof is not unduly crowded with foliage." "But this is the case until the Grapes commence colouring, when the growths are drawn out, and often can be seen hanging from the roof, and then gradually removed except the top and bottom. But growth is encouraged from the base and termination of the rods, this growth trailing on the inside border, which is covered as thickly as an Ivy bank with foliage. The first thought that arises is, Does not this extraordinary growth deprive the bearing laterals and bunches of some support? The crop gives a very emphatic answer in the negative. From the base of one or two Vines growths of great vigour were rambling for 20 or 30 feet on the surface of the border, and yet the wood and fruit of those Vines were as fine if not finer than those of other Vines which had not produced such luxuriant basal growth. This growth is encouraged for the purpose of stimulating active root-action, from which the crop benefits. On lifting up the mass of foliage resting on the border the manure-surfacing is seen to be completely permeated with white roots, which go far to explain the fine condition of the Vines and crop. This almost wild extension of laterals, in positions where they do not crowd the Vines, I observed at other places 'about Liverpool,' where Grape culture is well carried out, and the fact is worthy of mention and of the attention of cultivators in other districts where a different and closer system of stopping the laterals prevails." The two crops on these Vines, since the above notes were written, have been even superior, and worth a long

journey to see. I can mention other Vines grown where unrestricted principles have been resorted to, not only being more lasting, but they have borne heavier crops of fruit than any restricted Vines I have seen. Vines thus grown are not so liable—when free growth is continued both at the base and top—after a few years to become exhausted or produce smaller bunches as those restricted, stopped, pinched, and confined to a single stem.

Last year I saw a fine house of young Vines grown on Mr. Iggulden's principle, the supernumeraries being left 8 or 10 feet long, and it would have been impossible for them to have looked more promising to produce a good crop of Grapes. What was the result? The bunches were small, not averaging half a pound in weight each, and they much disappointed me. Mr. Iggulden seems anxious to know what fruit I took from my Vines the second season, and in return perhaps he will say what he can take from permanent restricted Vines. I took the second year 6 lbs. of Grapes, and the third 12 to 13 lbs. from each Vine, some of the bunches of Black Hamburgs weighing 3½ lbs. each. They finished well, and have made good strong wood—as strong as could be wished without being pithy—and showed no debilitating effect upon them; in fact, I believe they would have carried half as many more without injury in the least. I have stated under the mark, as I did in the case of the pot Vines, some of their bunches weighing over 2 lbs. Having no wish to exaggerate I would always prefer to be under than over the mark, and as I only weighed the whole produce of one pot Vine, which was certainly the best, and was carrying 10 lbs. of Grapes all but a few ounces.

During the first season when planting from eyes it is an impossibility to encourage much growth of laterals at the bottom if wished. The eyes only can be plumped and the bottom thickened by stopping them as before described. My remarks apply to permanent Vines. I will challenge either Mr. Iggulden or any other grower to prove that a Vine unrestricted at the top thickens more than one that is restricted, at the "expense of the base;" but, on the contrary, when restricted, and the sap is confined, then the top swells to a greater size and produces more prominent eyes near the extremities, and thus leaves the lower portion of the rod considerably thinner. This is readily observable in ninety-nine pot Vines out of every hundred, and it would be even as marked in Mr. Iggulden's supernumeraries if only stopped and confined to 8 feet. If Vines in pots are stopped when about 9 inches or 1 foot in length, and again when 3 feet, the cane is then more of a similar size throughout. If the Vines have been stopped as described it is a matter of but little moment how long they are pruned the second season; they do equally as well if left 4 or 5 feet as if pruned back near the base—in fact, I am no advocate, if the Vines have made good growth the first season, to cut them down within 1 or 2 feet of the border. No advantage is gained. If left longer plenty of shoots will start, which, if allowed liberty to extend at the base, the stem will continue to swell, and at the end of the season will be considerably thicker at the bottom than the top.

The second season's treatment of my Vines after pruning is this: If they break well, which they have always done, the laterals are stopped about two leaves beyond the bunch; or, if I want no fruit, about the same distance. The uppermost laterals, if they are taking the lead of the basal ones, are kept closely pinched, and perhaps the leader, if extending too fast, when 3 feet long or at the latest when a foot or two longer. I have no further standard for regulating the stopping of the leader than the progress and strength of the lower shoots. The end lateral growth is removed in every instance when pinching the leader, so as to compel the main end bud to break instead of a lateral growth taking the lead. All the lower laterals are kept pinched (except the two or three at the base, which are allowed to extend) until this bud has again started into growth. The leader is again stopped when it has made about another 8 feet of growth. The laterals up to the first stopping are kept pinched, as is usual, while up to the second they are allowed to cover the trellis without crowding. Care is taken to obtain growths as near the base as possible, which are allowed to extend as well as the leader until the top is reached, when they are allowed to go down the back wall. The bottom growth which covers the front of the border is regarded by growers of Vines on unrestricted principles of vital importance to the thickening of the stem and equal distribution of the sap, thus giving to cultivators the advantage of producing as large bunches at the bottom and middle of the house as at the top. Again I assert, as large bunches cannot be produced at the bottom as the top when the Vines are restricted. This is proved by the fact that in the majority of gardens where restrictive ideas of growing Grapes are entertained the bunches are always the smallest at the bottom, and Mr. Iggulden cannot deny it, for I am sure he has seen the same fact again and again himself.

Your correspondent concludes my practice is to allow unlimited growth only at the top, or is not sufficiently acquainted with unrestricted after the first season's growth. Mr. Iggulden's statement goes so far to prove that unlimited growth is of some advantage "in case of defective root-action." If restricted Vines are liable in any stage to show signs of exhaustion, and this resulting from a defective root-action, the soundness of an unrestricted growth is evident. Moderate crops for a series of years on restricted Vines become in the end much too heavy, and

exhaustion is the result. How are such Vines to be recruited? Either the crop for a season must be sacrificed or restriction discontinued. This being the case, advocates of restriction would have to follow the system they condemn to restore to the Vines their former vigour. Many able Grape-growers have found the advantage of giving Vines previously restricted greater freedom of leaf-growth after they have commenced to go back. I am convinced that unrestricted Vines not only continue longer to produce fine bunches and heavier crops, but their fruitfulness

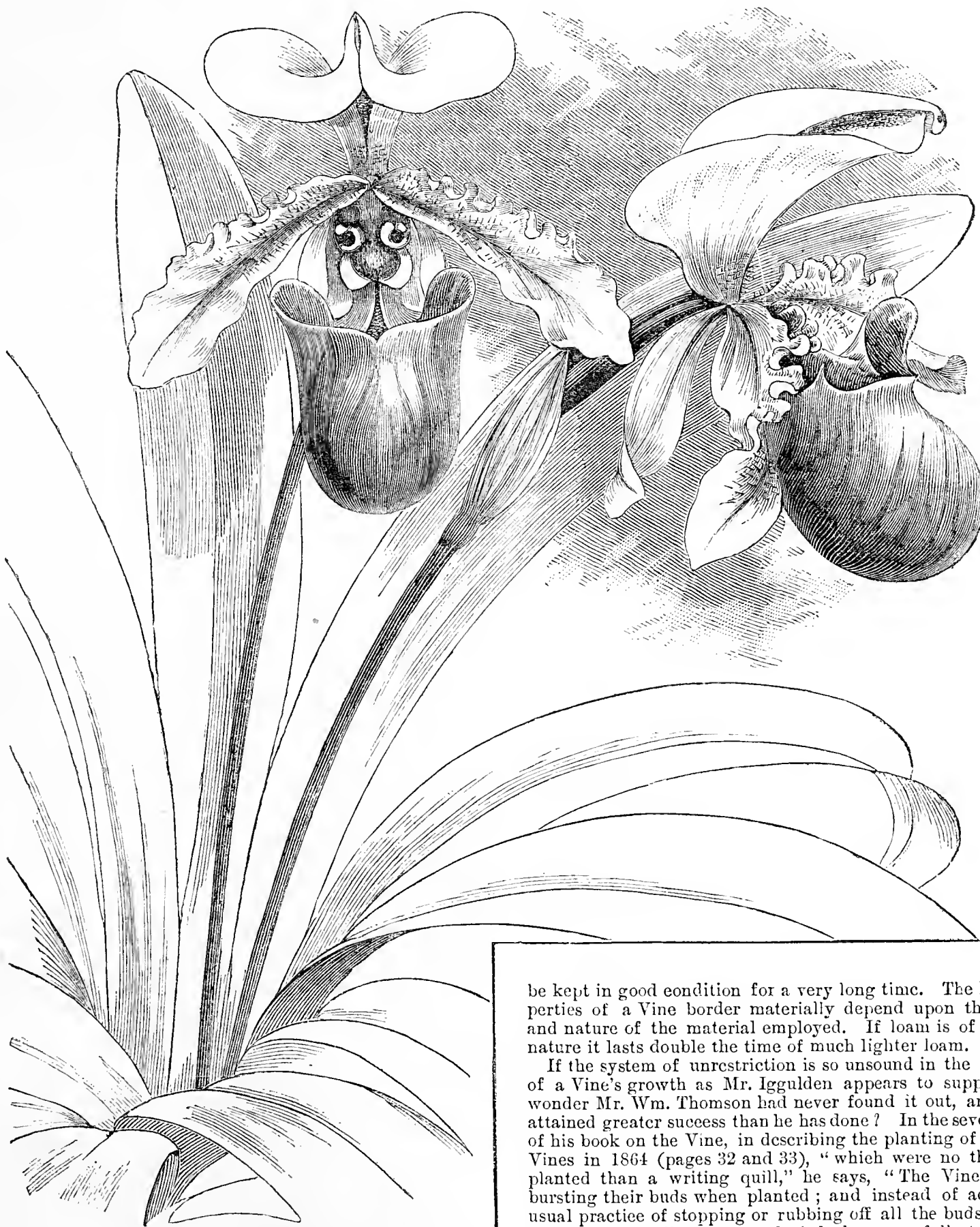


Fig. 80.—CYPRIPEDIUM SPICERIANUM (see page 500).

is extended over an unlimited period of time without signs of exhaustion.

All Vine borders in time become exhausted whether the Vines are restricted or not; but much can be done in supplying them with food from the top of the border, by which means they can

be kept in good condition for a very long time. The lasting properties of a Vine border materially depend upon the condition and nature of the material employed. If loam is of a retentive nature it lasts double the time of much lighter loam.

If the system of unrestricted is so unsound in the early stages of a Vine's growth as Mr. Iggulden appears to suppose, it is a wonder Mr. Wm. Thomson had never found it out, and who has attained greater success than he has done? In the seventh edition of his book on the Vine, in describing the planting of some small Vines in 1864 (pages 32 and 33), "which were no thicker when planted than a writing quill," he says, "The Vines were just bursting their buds when planted; and instead of adopting the usual practice of stopping or rubbing off all the buds but one or two, I allowed all to grow and tied them carefully to the wires. By this means I had in some instances ten rods to one Vine, all of which during the season ran to the top of the house and partly down the back wall, a distance of 30 feet, and many of these rods were as strong as ever I had previously seen a single rod from a Vine the first year it was planted. In January, 1865, when they were cut down, the whole house was a perfect thicket of wood.

I cut back all these Vines to within a foot of the front sashes, and trained up two rods from them the following season, fruiting them in 1866." Further on he says—"If, instead of permanent vigour and productiveness, an immediate return were the object aimed at, I have no hesitation in saying that such a Vine would have yielded 50 lbs. of Grapes the following autumn." I feel confident that such an able cultivator would not have tolerated this unlimited growth if it had exhausted the borders to such an alarming extent that Mr. Iggulden supposes, or have been no permanent benefit to the Vines. Like Mr. Iggulden, I never saw any harm apparently result from Vines bleeding, but who knows what such Vines might have done had they not bled?

Now to the statement of "AN OLD GRAPE-GROWER" where he says, "If he cuts them down in winter to the point below where free growth was encouraged he will simply cut off the best buds that would, if left, produce the best bunches and finest Grapes." Would "AN OLD GRAPE-GROWER" not do the very same with Vines grown on a more restricted system, or would they be left the whole length? If cut back at all the best buds would be cut off, as they are generally near the top, especially when restricted. If "AN OLD GRAPE-GROWER" grows a pot Vine under whatever system he likes, he cannot obtain the buds as good at the bottom as the top. If he was to cut it back for planting, or rub off the buds when breaking into growth—if he wanted to shorten it, how would he retain the best portion of the cane and do it? It would be interesting to know how he prunes his Vines. If, on the spur system, how does he manage without cutting off all the best buds? for they are not either on restricted or unrestricted Vines at the base of the growth.—W. BARDNEY.

CYPRIPEDIUM SPICERIANUM.

AMONGST the many beautiful *Cypripediums* which are now in cultivation, the one represented in fig. 80 (p. 499.) is likely to take a prominent position as a popular favourite with Orchid-growers. It is unquestionably one of the most beautiful in the genus, and that it is already becoming appreciated is evident from the high prices realised for small specimens at auction sales in London. Not many weeks ago a plant with two growths in a 54-size pot was sold for sixty guineas—a rather long price for so small an example. An Orchid in such demand as this will no doubt receive the careful attention of propagators, and it may be soon expected to become more abundant and cheaper.

The species is a native of the East Indies, whence plants were sent to Mr. Spicer several years ago, and from him they passed into the possession of Messrs. J. Veitch & Son of Chelsea. It is an ally of the well-known *C. insigne*, having narrow bright green leaves and one-flowered scapes. The flowers are especially notable for the large pure white dorsal sepals, which are slightly green at the base, and have a central purplish line from the base upwards. The lip is neat in form, reddish brown in colour, with a narrow margin of pale green. The petals are green with red streaks and dots, and prettily crisped at the margin. The staminal node is broad and one of the attractive features in the flower, being bright purple, contrasting strikingly with the handsome white dorsal sepal.

The accompanying engraving was prepared from a specimen recently flowering in Messrs. Veitch's Chelsea Nursery, and faithfully represents the leading characters.

STRAWBERRY FARMING—THE FUNCTIONS OF ROOTS.

I HAVE read in your Journal with much interest and instruction Mr. Raitt's excellent articles on Strawberry farming. If I understand correctly the sentence at page 443, Mr. Raitt thinks that a Strawberry has two sorts of roots which perform separate functions in the economy of the plant. I do not think that such is the case in any plant, and I shall endeavour to explain how roots grow, how they take up nourishment, and how assimilation takes place in the higher plants.

From the embryo the root strikes downwards into the soil, and having at its point or root-cap a number of small cells called the spongioles. This root-cap covers the outermost cells of the growing point, and forms a shield to the root when growing in the hard soil. The primary root throws out secondary or lateral rootlets, which continue spreading as the plant grows. At the apex of every root and rootlet the cells of the spongioles are continually forming so long as the plant is growing. These cells have closed but permeable walls, hence all nourishment from the soil must be in a fluid state. The nutrient fluids are absorbed by the cells on the principle of endosmose and exosmose. This principle constitutes the property which all fluids and gases of

different densities possess—viz., diffusing and intermixing through a permeable membranous wall till they become of equal density. As the cell-sap in the cells of the spongioles has a higher specific gravity than the moisture of the soil a strong current is set up, whereby the thinner fluid of the soil presses into the cells, pushing upwards the denser cell-sap, and so on from cell to cell till the fluids become of equal density. The farther progress of the nutrient fluids into the vegetable tissue is carried forward by capillary attraction, centrifugal force, and the evaporation from the leaves. A small portion only of the cell-sap passes out into the soil. It is found by experiment that this portion of the cell-sap is always acid. This acid helps to dissolve the necessary salts out of the soil for the well-being of the plant. We often see the small roots of plants as if they were eating into hard stones. The acid of the exosmotic current dissolves the stones, thereby enabling the roots to absorb the soluble saline matters indispensable to the plant.

As long as a plant is in life and vigour it must have access to water in order to form organic substances from inorganic food materials. This water is entirely supplied by the roots; and all roots, whether near the surface or deeper down, perform, so long as they are in a growing state, the same functions. Young and vigorous roots near the surface, and revelling in abundance of food materials supplied by a liberal top-dressing, will perform their functions much more vigorously than those deeper down in soil that may be partially exhausted of the necessary ingredients.

The substance besides water which forms the bulk of plants is carbon. Carbon forms about 50 per cent. of the ingredients of plants. Cellulose, lignin, starch, gum, and sugar are all compounds of carbon and water. The great bulk of this carbon is derived from the atmosphere by the decomposition of carbonic acid (carbon dioxide). On the leaves and green part of plants, but more abundantly on the leaves, are small pores or openings called the stomata. Surrounding the stomata are crescent-shaped cells with very thin walls containing chlorophyll, the source of the green colour in plants combined with particles of protoplasm. I may remark in passing that protoplasm is the essential constituent of all cells; and as cells, either separate or combined, are the elementary organ of all plants, so protoplasm is the true life of the cell and the formation and origin of all new cells and all new development. The stomata form a connection for interchange of gases between the intercellular spaces in the body of the plant and the outside air. The chlorophyll cells act as guards for closing and opening, more or less, the stomata as required. Iron is an essential constituent of chlorophyll, and its action is very languid without access to light. Through the action of chlorophyll plants decompose carbonic acid from the atmosphere, taking up the carbon by the stomata and liberating the greater part of the oxygen. Light and heat are necessary for an energetic action of chlorophyll, which is essential for the full vigour of the plant in order that it may perfect its fruits and seeds. The want of light and heat in a cold sunless summer makes the action of the chlorophyll languid, hence unripe fruits and immature grains.

Thus it is the leaves that are principally concerned in the process of assimilation, and the roots in the absorption of fluid nutriment, and both are necessary for the formation of new organic compounds in the plant. It is beyond the scope of this article to refer to the various other movements and changes that are continually going on in a growing plant.

Different species of plants absorb different nutrient matters from the soil, and it is on this selective power of plants that the basis of true agriculture is founded—viz., the rotation of cropping. I quite agree with Mr. Raitt, however, that as in his case, where rotation of cropping cannot be practised, there is nothing better than liberal top-dressing from the compost heap. Artificial manures are only stimulants, and in large quantities soil-exhausters.—J. S., *Arbroath*.

CHRYSANTHEMUM SHOWS.

CLOSELY following the principal London exhibitions the three midland towns, Northampton, Birmingham, and Wellingborough, have held satisfactory shows, well maintaining the credit of horticulture in their respective districts. The rapidly extending popularity of the Chrysanthemum is evidently not confined to the neighbourhood of the metropolis, and year by year the shows are increasing in number and importance.

NORTHAMPTON.—NOVEMBER 22ND AND 23RD.

Ten years of steady progress have placed this Society in a substantial position amongst provincial horticultural societies, and, judging by the results at present attained through judicious and energetic management, the future advancement will be rapid and satisfactory. The Exhibition held upon the above dates was probably

the best yet seen in Northampton both in the number and quality of the exhibits, all the principal classes which were provided for specimen plants and blooms of Chrysanthemums, fruit, and vegetables being well represented, and in some instances the competition was extremely keen. The spacious hall of the Corn Exchange, admirably adapted for an exhibition of this kind, was well filled without being crowded, and considerable care was exercised in the arrangement to provide the most effective display possible. Most of the exhibits were placed upon tables extending the full length of the hall, while near the wall on one side were collections of Chrysanthemum plants, and on the other side chiefly vegetables, the groups occupying the end opposite to the entrance, and forming a pretty hank of flowering and fine-foliage plants.

The classes were in two sections devoted respectively to gentlemen's gardeners or market gardeners and to amateurs, the latter being defined as exhibitors who do not employ a gardener either regularly or occasionally. Among these the Society appears to have done some really valuable service, having encouraged many working men to employ their spare time in the cultivation of plants and vegetables, in some cases with highly creditable but surprising results considering the limited resources at the command of such growers. But the good and useful work of the Society has by no means been confined to that portion of its supporters, for it has encouraged an honest but keen rivalry amongst the local gardeners, imparting an impetus to horticulture in the district that is now becoming distinctly evident in the improved productions staged. Much more, however, remains to be accomplished, and under the able management of the enthusiastic Honorary Secretary, Mr. E. Draper, success in no mean degree may be confidently expected. Happily, too, Mr. Draper is well supported by a practical and energetic Committee, who thoroughly appreciate their Secretary's efforts to render the Society a credit to the county.

The Cup Classes.—In the four principal classes for Chrysanthemums silver cups were offered as the first prizes—namely, two value three guineas each for gardeners, and two value two guineas each for amateurs. In the gardeners' class for six specimen large-flowering Chrysanthemums, incurved varieties, Mr. J. Holland, gardener to W. Jeffrey, Esq., Billing Road, was the most successful exhibitor, gaining the cup with neat well-grown plants of moderate size, none exceeding a yard in diameter, but even and fairly well flowered—Mrs. Dixon, Mrs. George Rundle, and Prince of Wales being especially noteworthy. Mr. F. S. Ingram, gardener to W. Butlin, Esq., Dustan, was a good second, also with neat specimens; and Mr. Hilburn, gardener to C. J. R. Woolston, Esq., Wellingborough, taking the third position with even plants, but tied in rather too formally. The cup offered in the amateurs' class for a similar number of specimens was deservedly won by Mr. W. F. Henman, Great Houghton, who had half a dozen well-grown plants of moderate size, evenly trained, and creditable both in foliage and flowers. Lady Talfourd and Mrs. Dixon were in especially good condition. Mr. T. Manning, Lower Mounts, and Mr. J. Arnshy, Lower Thrift Street, secured the second and third prizes in that order, both showing very fair examples.

Cut blooms were represented by several good collections. The cup-winner in the gardeners' class for twenty-four incurved varieties was Mr. E. Berry, gardener to the Countess of Leven and Melville, Roehampton, who staged clean, even, substantial blooms of the leading varieties, among which John Salter, Lady Slade, Empress of India, Lady Talfourd, and Prince of Wales deserve notice for their size and good form. Mr. J. Green, gardener to W. Shoosmith, Esq., was a very close second with neat blooms, some of the finest being John Salter, St. Patrick, Barbara, Lady Hardinge, Jardin des Plantes, and Hero of Stoke Newington. Mr. J. Holland was third with a collection inferior to the preceding in very few points, and containing several handsome flowers, among which was a pale yellow sport from Mrs. G. Rundle named Mr. T. Boddington, a neat bloom with broad florets. The successful competitors in the corresponding amateurs' class for twelve blooms were Mr. Henman, Mr. Manning, and Mrs. Bromwich, Kilsby, all of whom had neat blooms, rather small but compact, and clear in colour.

Specimen Plants.—These added greatly to the brightness of the Show, for though none was especially remarkable for size, yet the blooms were abundant, in some instances of good form, and in all fresh and clean. Taking the gardeners' classes first, the chief was for six Chrysanthemums of any kind "grown naturally," that is untrained, W. Shoosmith, Esq., contributing the prizes. Mr. T. Wood, gardener to J. Phipps, Esq., Sunnyside, took the leading position with healthy specimens, mostly flowering very freely, Julia Lagravère, Ariadne, and Guernsey Nugget being particularly noteworthy in that respect. Mr. J. W. Abrahams, gardener to R. Howes, Esq., followed, having good plants of Dr. Sharpe and Mrs. Dixon; Mr. G. Rickard, gardener to W. Hill, Esq., securing the third award with well-flowered examples. The best four specimens, incurved varieties, were staged by Mr. Abrahams, carefully trained and healthy plants; Mr. J. Payne, gardener to T. Shepard, Esq., Billing Road, and Mr. Ingram being adjudged the other prizes in the order mentioned, each contributing fairly satisfactory plants of moderate size, Mr. Holland had the finest single specimen incurved variety, an example of Mrs. G. Rundle, neatly trained and profusely flowered. Mr. Abrahams followed with George Glenney, and Mr. Payne with Guernsey Nugget, both fairly good. Mr. Abrahams secured chief honours with four Pompons, even and fresh specimens of the White and Yellow

Cedo Nulli, Fairy, and Shirley Hibberd; Mr. Payne was second, his best plant being White Cedro Nulli in very satisfactory condition; Mr. Green obtained the third place with creditable examples of Bronze Cedro Nulli and Bob. Mr. Abrahams' well-flowered plant of White Cedro Nulli was placed first in the class for one specimen Pompon, Mr. Green securing a similar position with Madame Marthe as a standard. In the amateurs' classes for plants Messrs. Henman, Manning, Arnshy, Penn, and Payne were the prizewinners, the first three named showing remarkably well-grown specimens. Mr. Henman exhibited particularly well, taking three first prizes. His best plant was a beautiful example of Chevalier Domage, as symmetrically trained as could be desired, the flowers very abundant, of good size, and bright colour. As a specimen indeed this was one of the best plants in the Show. Several of the plants in Messrs. Manning's and Arnshy's collection were also very creditable.

Cut Blooms.—These were numerous shown, the competition being generally keen; but no blooms of unusual size were staged, indeed the majority were not above medium size, though they were compact, neat in form, and fresh in colours. In the gardeners' section the chief class was for twelve incurved varieties, Mr. Berry being adjudged principal honours for good blooms; John Salter, Barbara, Cherb, and Lady Slade being prominently noticeable. Mr. J. Green followed very closely with clean neat blooms, Mr. Holland taking the third position. Nine collections of six incurved blooms of one variety were staged, Mr. Green leading with Hero of Stoke Newington, fine; Mr. Berry following with Princess Teck, neat; and Mr. Abrahams third. In the next class, for six distinct varieties, there were a dozen entries, the majority of blooms being close in quality. Mr. Berry was again to the fore, having General Bainbridge, Golden Empress, and John Salter in capital condition. Messrs. Abrahams and Wood were second and third respectively. Messrs. Berry and Green were the prizetakers in the class for Japanese, Anemone, and reflexed varieties, four of each, both exhibitors showing good blooms. Messrs. Green and G. Oram, gardener to Mrs. Whitworth, had the best collection of twelve Pompons, the former having Dick Turpin, Antonius, and Mr. Astie very good. The blooms in the amateurs' collections were mostly small but neat, Mr. Henman being again one of the principal prizetakers; Mrs. Bromwich, and Messrs. Green, West, Tew, and Manning being the other successful competitors.

Miscellaneous Plants.—The great feature of this portion of the Exhibition were the Primulas, which were both numerous and well flowered. Some very fine specimens were staged, but in a few instances the pots were a little too large, and rather detracted from the appearance of really well-grown plants. In the class for twelve the leading collection was shown by Mr. Holland, the plants being first-rate in foliage and flowers, the latter large and of good form. Messrs. Green and Ingram followed very closely, both having creditable plants. The best six were from Mr. Payne, Messrs. Holland and Oram taking the second and third positions with healthy plants. In the class for a miscellaneous collection of twelve plants, not less than six in flower, three exhibitors appeared, all contributing healthy specimens. Mr. Hilburn gained the leading prize with first-rate examples of *Gleichenia semi-vestita*, *Rondeletia speciosa*, an evenly trained globular specimen 5 or 6 feet high, *Eucharis grandiflora*, and *Encephalartos villosus* amongst several others. Mr. J. S. Ingram, gardener to W. Butlin, Esq., was second, also with fresh, healthy, well-grown plants; *Cypripedium insigne*, *Yucca aloifolia*, and a very distinct form of *Odontoglossum* being especially notable. Mr. Fairbrother, gardener to R. Jurnes, Esq., Cliftonville, was third with a fine *Platyccrium alcinorne* and several other praiseworthy plants. Pretty collections of British Ferns were contributed by Messrs. Penney and Oram, who gained the prizes in the order named. Mr. Green had the only two pots of *Mignonette* in the gardeners' class, but there were admirably grown specimens of Miles' Hybrid Spiral profusely flowered. Stands of flowers and bouquets were mostly arranged tastefully, the principal prizetakers being Messrs. Fairbrother, Abrahams, Oram; Walter, gardener to R. Eykyn, Esq., Gayton House; and J. H. Allen, gardener to H. Pritchard, Esq., Abington House, in the gardeners' section; and Messrs. Manning, Payne, Penn, and Arnshy in the amateurs' classes.

Fruit.—Like most of the other classes those devoted to fruit were well filled with creditable produce. The leading collection of six dishes was staged by Mr. J. Day, gardener to A. Seymour, Esq., Norton Hall, who had well-ripened black and white Grapes, and fair Apples and Pears. Mr. Ingram was second with samples nearly equal to the first in quality, including a handsome Pine Apple. Black Grapes were contributed by Messrs. Holland and Payne in fine condition, the berries being of good size and well coloured in both instances. Apples were largely and well represented, ten collections of six culinary varieties and eleven of six dessert varieties being staged. In the former, Mr. J. Bowler gained the chief award with New Hawthornden, Hanwell Souring, and Gloria Mundi particularly fine. Mr. Gardiner, gardener to Sir H. Wake, was a good second, and Mr. Oram third. The winning collection of dessert varieties was from Mr. W. Chapman, gardener to H. P. Markham, Esq., Pitsford, who had excellent samples of Wyken and Ribston Pippins. Mr. Bowler followed, also having Wyken Pippin in fine condition; Mr. Gardiner being third with Court of Wick and Adams' Pearmain very neat. Mr. D. Taylor, gardener to the Duke of Grafton, secured chief honours with six dishes of dessert Pears, good fruits of Josephine de Malines, Easter Beurré, Duchesse d'Angoulême, Glou

Morceau, and Beurré Baehelie. Messrs. Day and Gardiner followed closely with good examples. In the amateurs' classes some praiseworthy fruits were shown, especially the Apples, the prizewinners being Messrs. Penn, Dunkley, Payne, Hodson, and Mrs. Brownich.

Vegetables.—Some capital vegetables were shown, and some of the leading collections would not have disgraced any exhibition. For eight distinct varieties Mr. J. Eads, The Gardens, Woolton Hall, was deservedly awarded the chief prize for even clean samples admirably set up. His Turnips, Onions, Potatoes, Cauliflowers, Beet, and Brussels Sprouts were excellent, and well merited the admiration they attracted from visitors generally. Mr. J. Day obtained the second position also with very creditable samples, the Onions and Cauliflowers being the leading features. Mr. Oram was a good third. Eleven collections were entered in this class, and throughout the productions were of more than average merit, the Brussels Sprouts being especially notable. Potatoes alone formed a show of no ordinary interest, there being nine exhibitors in each of the two classes. Messrs. Allen, Day, and Chapman had the best dishes of kidney varieties, International, Pride of America, and Snowflake being those chiefly represented. In round varieties Mr. Ingram won the leading position with fine examples of Bresee's Prolific and Schoolmaster amongst others. Messrs. Oram and Seaton were the other prizetakers, both showing well. Amateurs also exhibited collections of vegetables and Potatoes in very praiseworthy condition, Messrs. W. Stephens, Henman, G. Harrison, Dunkley, Mawley, Penn, and Hickman being the prizewinners.

Several miscellaneous groups of plants and flowers were staged, one of the largest and brightest being that from Messrs. John Perkins & Son, Billing Road, Northampton, who had Pelargoniums, Ericas, Chrysanthemums, and Capsicums very tastefully arranged. Mr. J. Wesley, Blisworth, sent a stand of fine Pelargonium blooms, and Mr. J. Day a pretty basket of Calanthes, Poinsettias, and Ferns, which was highly commended. Two satisfactory facts in connection with the Exhibition deserve notice—namely, that the receipts at the doors were about £20 in excess of last year, and all the prizes were paid to the winners on the evening of the second day, a practice that might be advantageously adopted by many other societies. If the Society should find itself in the possession of a good balance some of the prizes might be profitably increased in value, and would no doubt lead to keener competition.

BIRMINGHAM.—NOVEMBER 23RD AND 24TH.

With this Exhibition the Birmingham Chrysanthemum Society attained its majority, and a more satisfactory celebration of that interesting period in its existence could scarcely have been held. Of the twenty previous exhibitions probably few have excelled this in the number and quality of the productions staged in competition or otherwise, certainly at the same period of year the weather could not have been more favourable; but in another very substantial and encouraging way the coming of age was rendered especially memorable. The balance of £11 odd previously to the credit of the Society will no doubt be greatly increased, for the receipts in the two days amounted to considerably over £100, compared with £84 last year, and such progress as this must indeed be sufficient to satisfy the most hopeful of the Society's supporters.

The Town Hall was, as usual, engaged for the Show, but the basement was not large enough to accommodate all the exhibits, and the galleries were, in addition, nearly filled with the smaller plants, blooms, &c. In the body of the Hall a central table bore the fruit, stands of flowers, bouquets, Primulas, and some miscellaneous collections not in competition, while at the sides of the Hall the specimen Chrysanthemums and groups of stove and greenhouse plants formed two handsome banks of flowers and foliage that were particularly striking when viewed from the gallery. A little more space between the central table and the side stages would have been an advantage, for in the evening, when the visitors were most numerous, they experienced considerable difficulty in passing round even to obtain a cursory glance of the exhibits. This could no doubt be easily remedied, and in other respects the arrangements were all that could be desired; and the leading members of the Committee—Mr. W. B. Latham, Mr. W. Spinks, Mr. G. Stacey, and Mr. C. Redfern (Secretary)—deserve great praise for the energy they display in the conduct of the Society's affairs.

Specimen Plants.—In the display of Chrysanthemums the specimen plants form the chief feature at this Show; and though the entries in some of the classes were not quite so numerous on this occasion as at some previous shows, yet the plants were of excellent quality, especially the two collections in the class for nine specimens, distinct varieties, in which the prizes offered were a silver cup value £5, £3, and £2. Mr. W. H. Dyer, gardener to T. W. Webley, Esq., Selly Oak, was accorded the leading position for evenly trained, healthy, well-flowered specimens 4 to 5 feet in diameter. The blooms were mostly of good substance, neat form, and fresh in appearance, the foliage also being abundant and vigorous. The varieties were Jardin des Plantes, G. Glenny, Guernsey Nugget, John Salter, Prince of Wales, Mrs. Dixon, Prince Alfred, Mrs. G. Rundle, and Bronze Jardin des Plantes. The second prize was accorded to Mr. J. Crook, gardener to W. Millward, Esq., Edgbaston, whose plants were not trained quite so low as the others, but even, well grown, and with abundant blooms, though these were rather small. Lady Slade was very finely represented. These were the only collections in the class, which, consider-

ing the value of the prizes, was rather surprising. For six specimens also the competition was confined to two exhibitors, Mr. F. Denning, gardener to J. Jaffray, Esq., Park Grove, Edgbaston, securing chief honours with compact examples, Prince Alfred and John Salter being particularly noteworthy for their neatness and floriferousness. Mr. W. Jinks, gardener to J. E. Wilson, Esq., Edgbaston, followed with fairly good plants, but bearing blooms a little too small, though Lady Slade was well shown. In the next class for three specimens the competition was keener, four collections being entered. Mr. Dyer was again the most successful exhibitor, having John Salter, Mrs. Dixon, and Golden Empress, with fine blooms and fresh healthy foliage. Mr. Jinks took the second position with neat examples of Lady Hardinge, Mrs. G. Rundle, and Mrs. Dixon, the latter having blooms of good colour. Six Pompons were well represented by plants from Mr. Dyer and Mr. Jinks, who gained the prizes in that order. The first had flat-trained specimens in fine condition, the Golden, White, and Lilac Cedo Nullis, Rose Trevenna, and St. Michael being the leading varieties. In the other group the best plants were Model, St. Michael, the Golden and White Cedo Nullis, all well flowered. The best three Pompons were the three Cedo Nullis from Mr. Dyer; Mr. G. Newell, gardener to L. Hayman, Esq., Edgbaston, following with smaller specimens. The very successful exhibitor in these classes, Mr. Dyer, who carried off nearly all the first prizes, also had the best single specimen, an example of John Salter, 5 to 6 feet in diameter, and bearing a large number of fine blooms. Mr. Denning was placed second with a fair Prince Alfred, the same exhibitors taking similar positions with a single specimen of a Japanese variety, both showing Elaine, but Mr. Dyer's specimen was uncommonly well flowered—one of the finest we have seen this year. Messrs. Dyer and Newell were the prizewinners in the special class for "a bank of natural-grown large-flowering Chrysanthemums," both contributing bright and effective groups of good plants.

Cut Blooms.—Though only three classes were devoted to these some fine collections were staged, especially in that for eighteen blooms, incurved varieties, in which a three-guinea silver cup was offered as the first prize. This Mr. Faulkner, gardener to F. R. Leyland, Esq., Woolton Hall, Liverpool (following up his success at the Kingston Show in the previous week), succeeded in winning with handsome blooms similar to those in the cup stand at Kingston, but not quite so compact and solid as they were. A very fine bloom of Barbara in this stand was selected as the best bloom in the Exhibition, and awarded the prize offered by Mr. Outram. The second prize for the premier bloom, given by Mr. Spinks, was adjudged to Mr. C. Neal, gardener to P. Southby, Esq., Bampton, Oxfordshire. Following Mr. Faulkner in the cup class Mr. W. Shingler, gardener to T. Tonks, Esq., Harborne, gained the second prize with large and well-formed blooms, John Salter, Mr. Gladstone, and Hero of Stoke Newington being the most prominent. Mr. J. Palmer, gardener to R. C. Bradley, Esq., Handsworth, was third with smaller examples. Messrs. Faulkner, Shingler, and Neal were the prizetakers with stands of twelve incurved blooms, all of fair quality. For twelve blooms grown within three miles of Stephenson Place, Messrs. Shingler and Palmer secured the awards with neat and creditable blooms. Extra prizes were awarded to Messrs. Comfort, Beal, and Palmer for stands of fine Japanese blooms, those for the first-named being particularly fine and rich in colour.

Miscellaneous Plants.—Ample provision was made for these in the schedule, and with very satisfactory results, for the plants staged in competition were generally of considerable merit, and added greatly to the beauty of the Show. The principal class was for nine plants, excluding Chrysanthemums and Primulas, two handsome collections being entered and forming fine groups each side of the Hall near the orchestra. The premier position was won by Mr. Jinks, whose plants were in excellent condition, including Croton Andreanus remarkably well coloured, Plumbago rosea flowering profusely, Eupatorium odoratum large and literally a mass of flowers, Dieffenbachia Bausei, and several other Crotons, all similarly well grown. Mr. Dyer was a close second, having a very fine specimen of Pteris cretica variegata, the other most noticeable plants being Cycas revolutus, Dendrobium nobile, and Croton variegatus. For this time of year all these plants were in excellent condition and very creditable to their growers. Mr. Jones was adjudged the premier prize for six plants, his specimens of Anthurium crystallinum, Kentia Fosteriana, and Chorozeema Henckmanni being particularly fine. Mr. Denning was second, also with healthy examples; Kentia Fosteriana was very noteworthy.

Primulas are well grown in the neighbourhood, and that the Committee recognise them as a speciality is evidenced by the fact that seven classes are devoted to these plants. In nearly all these the competition was good, and in consequence there was a display of Primulas such as we have not seen equalled this year, some hundreds being staged both in the body of the Hall and in the gallery; in fact, they seemed to abound in all directions. The majority, too, were very healthy and profusely flowered. In the nurserymen's class for twelve single varieties, six red and six white, Mr. Tomkins, Spark Hill, staged beautiful plants, having remarkably large flowers of great substance and good form. The foliage was also very vigorous and of a fresh healthy green colour. The second position was obtained by Messrs. Pope & Sons, King's Norton, who had plants of great merit. Mr. Tomkins was placed first with six plants, equally as fine as those already mentioned, with handsome trusses of flowers; and Messrs. Pope & Son followed with creditable examples. In the

gardeners' classes for twelve and six specimens respectively the exhibits were good. Messrs. W. Shingler; G. Caldicott, gardener to W. Mathews, Esq., Harborne Road; Jinks, and Jones being the prize-takers, all showing well-grown plants, especially those in the larger class. Six double-flowered varieties were contributed by Messrs. Jinks and Jenkins, those from the former being the more profusely flowered, but the latter were dwarfier and more compact. For six Fern-leaved Primulas Mr. Tomkins won chief honours with fine examples of the beautiful variety The Queen, with extremely large flowers. Mr. Johnson, gardener to Mrs. Elliott, The Cedars, followed with neat but smaller plants. The special prizes offered by Mr. J. Tomkins, Mr. Petch, and Mr. T. B. Thomson brought out good competition, and the exhibits added largely to the already extensive display of Primulas, Messrs. Denning, Caldicott, Jinks, and the Rev. E. H. Kittoe securing the principal positions.

Poinsettias, though by no means so numerous as the Primulas, formed a feature of great interest owing to their dwarf habit and the brilliant colour of the large heads of bracts. At this time of year well-grown Poinsettias are particularly serviceable in brightening an exhibition, and there are few gardens where their usefulness is not fully appreciated for decorative purposes. In the class for three specimens Mr. Dyer gained his accustomed position—first, with very fine plants, the stems about 2 feet or a little more in height, and clothed with vigorous rich green foliage down to the rims of the pots, and each specimen had eight to ten large heads, the bracts broad and richly coloured. Mr. Crooks followed with plants of similar height but not bearing quite such fine heads, though fresh and clear in colour.

Mignonette was similarly well represented, Mr. Dyer staging the winning collection of three specimens admirably grown, neatly trained, and well flowered. They were 2 to 3 feet high, somewhat cone-shaped but compact, without being formal; indeed they well deserved the position accorded them. Mr. Doughty took the second position with freely flowering plants but rather too tall, showing too much bare stem at the base though otherwise creditable.

A special class was devoted to plants for table decoration, the prizes being offered by Mr. B. S. Williams, Upper Holloway; Mr. Redfern, and Mr. Grice, and the resulting competition produced a pretty array of neat useful plants which occupied considerable space in the gallery. Mr. Denning had the best nine specimens in 5-inch pots, all even and admirably adapted for the purpose of table decoration, *Grevillea robusta*, *Dracæna congesta*, *Areca lutescens*, *Cocos Weddelliana*, *Pandanus Veitchii*, *Aralia Veitchii*, *Croton angustifolius*, and *Casuarina ericoides* being the most notable. Mr. Crook also had a praiseworthy collection, Mr. Jinks following closely with similar light neat plants, *Aralias gracillima*, *leptophylla*, and *Veitchii* being the leading specimens.

Bouquets and stands of flowers were represented by several tasteful arrangements including choice flowers of many kinds, Orchids predominating. In the nurserymen's class for a hand bouquet Mr. Hans Niemand, Edgbaston, was adjudged the premier prize for an extremely pretty arrangement of Orchids, *Lælias* being especially prominent; *Dipladenias*, Roman Hyacinths, white Chrysanthemums, and *Adiantum* fronds. These were lightly and effectively arranged, and formed one of the most tasteful and delicate bouquets we have seen this season. The second-prize bouquet (with several other exhibits) was removed early on the second day of the Show, the exhibitor, we understand, being dissatisfied with the award. It is regrettable even if he had any cause for considering himself aggrieved, which in the opinion of the majority was not the case, that he should have thus acted in direct contradiction to the rules of the Society. In the gardeners' class the bouquets were also neat, especially that from Mr. Merriman, gardener to H. L. Hayman, Esq., Edgbaston, for which the chief prize was awarded. Orchids and Bouvardias were freely employed with excellent effect. Mr. G. Newell was a close second, and Mr. Denning took the third position with a creditable contribution. The same exhibitors also carried off the leading prizes for an epergé of flowers, mostly bright and elegant.

Fruit.—Some excellent fruit was staged in several of the leading collections, Apples being very largely shown. The chief class was that for a collection of six dishes of fruit. Mr. W. A. Bannister, gardener to H. Amer, Esq., Bristol, was awarded the premier prize for well-coloured bunches of Lady Downe's and Muscat of Alexandria Grapes, neat Blenheim Pippin Apples, and Ickworth Impératrice Plums amongst others. Mr. Jinks was a good second, his Bcurré Dief and Duchesse d'Angoulême Pears being particularly fine. In the next class, for four dishes of fruits from growers residing within three miles of Stephenson Place, some creditable examples were staged, Mr. Denning taking the leading position with good Buckland Sweetwater and Black Hamburg Grapes. Mr. E. Chadwick, gardener to Mrs. C. Neilson, Kenilworth, being second; and Mr. Jinks third, both showing well. Black Grapes were abundant and mostly fairly coloured. Mr. W. Comfort, gardener to G. H. Everett, Esq., Knowle Hall, leading with Black Alicante; Mr. W. H. Clarke, gardener to Lady Edward Ashbourne, and Mr. Doughty following in that order. Messrs. Clarke, Bannister, and Jinks were the chief exhibitors of white Grapes. In the class for twelve dishes of Apples, six dessert and six culinary varieties, Mr. R. Dean, Ealing, gained the chief award with good fruits similar to those he staged at the Westminster Aquarium. Messrs. Bannister and Jinks followed closely with praiseworthy samples. The same exhibitors were also

the principal prizetakers in the other classes for Apples and Pears, the latter not being shown in remarkable condition.

The exhibits not in competition were numerous and highly attractive, the baskets of plants contributed by Mr. R. H. Vertegans, Chad Valley Nurseries, being especially handsome, and well deserved the commendation they received from the Judges. The baskets were 5 or 6 feet in diameter and about a foot in depth, the sides being covered with sprays of evergreens. One contained a number of plants of *Rivina humilis*, the lower portion filled in with white Primulas, and the contrast between them and the bright red berries of the *Rivinas* was most pleasing. Others contained *Begonia insignis* in first-rate condition, Azaleas, Bouvardias, and *Calanthes* associated with Poinsettias, the last-named being remarkably fine. A first-class certificate was also granted to Mr. Vertegans for plants of

Sisymbrium millefolium.—This was shown as a plant well adapted for table decoration. The specimens were 9 to 12 inches high, with finely divided leaves 3 to 5 inches long, 2 inches broad, and slightly curving, imparting a most graceful appearance to the plant.

Large and handsome collections of Primulas and Pelargonium blooms were staged by Messrs. H. Cannell & Sons, Swanley, the white and red Primulas being greatly admired; the rich colour of the variety Swanley Red was indeed remarkable. Mr. Hans Niemand had some well-grown Cyclamen; Mr. J. Tomkins sent plants of The Queen Primula very freely flowered; Mr. T. Hewitt, Solihull, had a stand of Pelargonium blooms; Mr. T. B. Thomson contributed some Primulas and a number of artificial flowers; and Messrs. Cranston of Hereford sent some fine Apples, representing many varieties.

WIMBLEDON.

Although somewhat late in the season this Exhibition was one of the best ever held in Wimbledon. All the classes were well filled, and there was a remarkable absence of old blooms. The Show took place in the Lecture Hall, which is well suited for a display of the kind, being spacious and easily accessible for competitors and visitors. The Secretary of the Society, Mr. H. A. Rolt, and the Committee must be congratulated on the excellency of the Show.

Groups.—Of these seven were staged in the various classes. For the chief place there was a keen competition between Mr. G. Stevens, St. John's Nursery, Putney, and Messrs. G. Mahood & Son, Windsor Nurseries, Putney. The premier prize was ultimately awarded to the first-named grower, his group being considerably fresher than that of his rival, who secured second honours. Mr. Goodyear, gardener to the Rev. A. Malan, Eagle House, Wimbledon, was third; and Mr. Elliott, gardener to the Rev. J. M. Brackenbury, Wimbledon School, who was next, was highly commended for a well-flowered group. Three amateurs' groups were staged, and were of more than average merit. Mr. H. A. Rolt, of Maud Villa, Wimbledon, took the first prize with a neat and diversified group; Mr. J. Townsend, Lingfield Road, Wimbledon, being a close second with more profusely flowered plants, variety and quality, however, being not so good. Mr. Mereday, Denmark Road, Wimbledon, took the third position.

Cut Blooms.—For twelve incurved varieties Mr. W. R. Strong, gardener to Mrs. D. Reid, Virginia Water, was placed first, his best examples being Golden Empress, Golden Queen Empress, Barbara, and Cherub. Mr. C. Gibson, gardener to J. Wormald, Esq., of Morden Park, Mitcham, only lost by a few points, his Hero of Stoke Newington being especially fine. Mr. G. Stevens was third with smaller blooms of good quality; and Mr. Woodgate, gardener to H. Hammersley, Esq., Coombe Wood, was also commended for a very fresh stand. Mr. G. Stevens was an easy first for six incurved blooms, Golden Empress and Empress being very handsome. Mr. Bennett, gardener to H. E. Rodewald, Esq., Fieldheim, Wimbledon Common, and Mr. J. Bentley, gardener to Sir Thos. Gabriel, Bart., Edgecombe Hall, followed in the order named. In the class for six Japanese Mr. Stevens was again the victor, having fine examples of Meg Merrilees, Sultan, and Yellow Dragon. Mr. Bentley and Mr. Bennett were second and third respectively. A prize given by a friend for twelve Japanese was awarded to Mr. W. R. Strong, Père Delaux being one of the best blooms in the Show; Boule d'Or was also good. Mr. Gibson's and Mr. G. Stevens' stands were filled with large and fresh flowers, and were both highly commended. In the amateurs' class for six blooms Messrs. H. A. Rolt, J. Mereday, and J. Townsend took the prizes.

Miscellaneous Exhibits.—There were several groups of flowering and foliage plants exhibited not for competition. Messrs. Mahood and Son sent a fine lot of plants, as also did Mr. Bridle, gardener to R. B. Evered, Esq., Putney. Mr. Law, gardener to R. S. Dean, Esq., The Priory, Wimbledon, had a group containing some well-grown Bouvardias. Amongst the latter was a sport called Priory Beauty, from B. elegans, of a light mauve colour. It has a free habit, and the colour is very pretty. A certificate was unanimously awarded the plant by the Judges. Mr. D. S. Thomson, The Nursery, Wimbledon, sent a well-arranged group and a spray of *Lapageria alba* bearing twenty-one blooms, which was very highly commended. J. F. Schwann, Esq., Copse Hill, Wimbledon, contributed a nice collection of Orchids in flower; and Mr. J. Lyne, gardener to A. Schlusser, Esq., Belvedere, had in one of his two groups some grand spikes of *Calanthe Veitchii*, besides some good specimen Pompons of excellent size and quality. Mr. Alderman, gardener to C. Czarnikow, Esq., Mitcham, showed six bunches of Muscats and Black Alicantes well finished; and Messrs. Logan & Rance, nurserymen, Wimbledon, a collection of Cyclamen, double Primulas, and Coleus. Other exhibits were sent

by Messrs. J. W. Moorman, Gibson, B. Dove, Goodyear, Woods, Bradford, Bennett, Newell, and Legg. Some of these sent large collections of fruit, which attracted much attention.

WELLINGBOROUGH.—NOVEMBER 25TH AND 26TH.

The first Exhibition of Chrysanthemums held by the Wellingborough Floral and Horticultural Society was very creditable to the projectors, a pretty display being provided in the Corn Exchange. The Committee wisely fixed the date of their Show two days after that at Northampton, and in consequence thus permitted many to exhibit at both, which was a manifest advantage to the Wellingborough Exhibition. As the first effort it was very satisfactory, and no doubt will be followed by better results in the future if the financial success is sufficiently promising to encourage another attempt. The arrangements were good, and the Society's affairs appear to be well managed by the Honorary Secretaries, Messrs. J. Pendred, G. F. Bearn, and J. Dulley, aided by a good Committee.

The specimen Chrysanthemum plants were mostly neat and well-flowered, but as the majority were similar to those at Northampton it is not necessary to enumerate them. The principal prizewinners were Mr. Abrahams, gardener to A. Howe, Esq.; Mr. Hilburn, gardener to C. J. R. Woolston, Esq.; and Mr. Clayson, gardener to W. Woolston, Esq., who showed well in the first five open classes. A pyramidal specimen of Elaine from Mr. Clayson, for which an extra prize was awarded, was very well flowered, though the blooms were rather small. Several of Messrs. Hilburn's and Abrahams' plants were also fresh and clean. In the amateurs' classes Mr. Henman of Northampton was a successful exhibitor, Messrs. Clayson and Manning also contributing specimens in most of the classes.

Cut blooms were not very largely represented, but they were generally neat and of good form. Mr. Hilburn's winning stand of twenty-four incurved varieties included fine blooms of John Salter, Lady Hardinge, Mr. Jay, and Mrs. Heale, Mr. Abrahams following with slightly smaller samples. In the class for twelve the positions of these exhibitors were reversed, but their stands were nearly equal in merit. Messrs. Henman, Clayson, and Manning were the successful amateurs, all showing creditably.

Miscellaneous plants formed an important feature in the Show, some really handsome specimens being staged in the leading collections. For "ten plants of any kind" Mr. Hilburn gained the premier award with well-grown specimens of *Ixora Williamsi*, *Eucharis grandiflora*, *Rondeletia speciosa*, *Lantana borbonica*, and *Encaphaltos villosus* amongst several others. Mr. Brockhurst took the second position with fine specimens of *Croton angustifolius*, *Cycas revolutus*, and *Alocasia metallica*. Both these collections were good and close in merit, but the first was clearly entitled to his position. Ferns were also admirably shown by Mr. Hilburn, who had fine specimens of *Dicksonia antarctica*, *Davallia Mooreana*, and one of the best examples of *Adiantum gracillimum* we have seen; it was nearly 4 feet in diameter and in excellent health. Mr. Brockhurst followed with smaller specimens but fresh, his *Adiantum Sanctæ-Catherinæ* being notable. In the corresponding classes for amateurs Messrs. Percival and Clayson were the chief winners, staging Ferns in particularly fine condition. Two beautiful collections of Primulas were shown by Messrs. Clayson and Brockhurst, who were awarded equal first prizes, the plants being very healthy and well flowered; those from the last-named exhibitor were all double varieties, including some of the newer forms admirably represented.

Fruit was not shown in great abundance, but the majority of the exhibitors contributed very well grown samples. Mr. D. Percival, gardener to W. Blott, Esq., had the best two bunches of Grapes—excellent specimens of Black Alicante and Gros Colman finely coloured and with large berries. Mr. Clayson followed with Trebbiano and Black Alicante, also well coloured and but little inferior to the first-named. Mr. Percival had the only collection of six dishes of fruit, and gained the first prize with remarkably fine Gros Colman Grapes, which formed his best dish. Messrs. Henman, Sanders, Dunkley, and Curtis showed good samples of Grapes and Apples and Pears in the amateurs' section.

Vegetables, both in the amateurs' and cottagers' classes, were confined to Potatoes and Celery, most of the exhibits being of good quality. A few bouquets and stands of flowers were also staged, but do not demand special mention.



KITCHEN GARDEN.

Forcing Department.—Chicory can be readily forced in a Mushroom house, or it may be forced in any structure with a temperature of 55° to 60°, light being excluded so as to insure thorough blanching, otherwise the leaves are too bitter to be palatable. If Potatoes are required early, sets of some approved early variety should now be

inserted in leaf soil preparatory to being planted out in pits. The sets must be placed in a temperature of 55° to 60°, and when the shoots are 2 or 3 inches long the sets will be ready for transferring to pots or beds. Where forcing operations are extensively carried on it is important to have in readiness a good supply of fermenting materials for immediate use; and as it is a mild and durable heat that is needed in forcing vegetables, two or three parts leaves to one of stable litter will be better than all litter. Now that leaves are obtainable a good supply should be stacked for use as required during the winter and spring. Keep up a supply of French Beans by an occasional sowing according to the demand and the space available, affording a night temperature of 60°, and 70° to 75° by day. Under favourable conditions ventilate frames or pits containing Radishes, Cauliflowers, and Lettuces, stirring the soil occasionally between the two latter, and remove yellow or decayed leaves.

HARDY FRUIT GARDEN.

The pruning of Gooseberry and Currant bushes should be proceeded with as opportunity offers, although where bullfinches are numerous the pruning may be deferred until spring. In pruning Gooseberries it is important that the branches be disposed so as to leave the bushes open in the centre, and that they be regularly placed around the stem. The side shoots upon the branches should be cut-in to two or three buds from the base, and the terminal shoots in a similar manner, provided the bushes are of full size, but if extending the points of the growths need only be removed to preserve the symmetry. Bushes in course of formation will only need the side growths cut-in to about half an inch from the base after a reservation has been made of shoots for furnishing the bushes. Where the bushes are very vigorous a moderate thinning the shoots is preferable to spurring them in closely.

Red and White Currants having the branches radiating from the centre equally to leave the centre of the bushes open should have the shoots of the last season's growth spurred close in, as Currants usually form natural spurs abundantly, and the removal of the spray is essential for the admission of light and air. The extremities of trees of full size must also be cut close in, but any bushes in course of formation should have the growths, unless very long, left entire. Black Currants must not be spurred in, but have the old growths well thinned out where young growth admits of its being done without endangering next season's crop. This will keep the bushes well furnished with young bearing wood, upon which depends the production of a plentiful crop of fine fruit. The current year's fruiting canes of Raspberries have already been removed. The canes should be secured to the stakes or trellis with tarred string, the points of the shoots above 4 or 5 feet in length being removed. When the pruning is completed and the trimmings cleared away a thorough dressing of manure should be applied, pointing it in lightly near the stem of the bushes or stools, and deeper in the spaces between the plants, without disturbing the roots. A loose surface is, however, desirable to allow of rain and air having free access, and to admit of hoeing for the destruction of weeds.

FRUIT HOUSES.

Vines.—Vines in pots started early are now in free growth, and should have a night temperature of 60° to 65°, and 70° to 75° in the daytime, ventilating a little at 70°, and moderate ventilation at 75°, allowing an advance to 80° or 85° from sun heat, closing early at 80°. Disbudding having been attended to, it will now be necessary to stop shoots which, though showing fruit, will not be allowed to carry it at the fourth, fifth or sixth joint, it being sound practice to have leaf-development somewhat in excess of that actually needed for encouraging root-growth to keep up the supply of nutriment to the fruit-bearing growth, as Vines with plenty of foliage have a reserve to fall back upon if the resources of the Vine should be unduly taxed, as often happens from excessive evaporation. The shoots intended to carry fruit must not be stopped until two or three joints are made beyond the fruit, then pinch out their points, and rub off the laterals below the fruit, but on a level with and above the fruit allow them to remain, stopping these to one leaf. Keep up moderate moisture in the house, but syringing the foliage should be discontinued after the bunches appear. Turn over the fermenting materials, keeping the heat steady around the pots at 75°.

The house advised to be closed for starting early in this month to afford fruit ripe early in May must now have fire heat to maintain a temperature of 50° to 55° at night and 60° to 65° in the daytime, not exceeding the latter without free ventilation. If the Vines are young or have usually been started at a later period, they will need at least 5° more. Place the rods in a horizontal position and syringe them several times a day, having on the floor of the house if practicable some fermenting materials. Protect the outside border from heavy rains and snow. No further delay must be allowed in preparing the house where the Vines are to be started early in the year to afford ripe Grapes early in June. Black Hamburgh and other kinds cleared of their crops and the foliage being down should be pruned to plump well-developed buds, which in well-ripened short-jointed wood will be found at the second joint at the base of the current year's growth. This modification of the spur-and-rod system of pruning is more successful than the close-spur system, and is well worth practice. Any undue extension of the rods or spurs is obviated by cutting out those long and bare of growth, and securing young wood from the main rod, or as near thereto as possible.

Cucumbers.—Keen winds have necessitated careful attention to ventilation, especially as the days have been bright, the object being to prevent a chill by too great an influx of cold air, and at the same time obviate the evil of the temperature rising too high, which can only be done by turning off the top heat, so as to lessen the necessity for ventilation. In dull weather avoid great fluctuations of temperature, 60° to 65° at night and 70° to 75° in the daytime being suitable, and maintain the bottom heat steady at about 80°. Moderate atmospheric moisture will only now be necessary. The evaporation troughs need only be charged when the air is light. Continue removing old foliage and exhausted growths, avoiding overcrowding and overcropping, and giving liberal encouragement to the roots by fresh compost, with an occasional supply of weak liquid manure. Remove all staminate blossoms and tendrils from the winter-fruited plants which are well advanced and showing fruit freely. The blossoms, if the weather prove dull, will need fertilising to insure the fruit swelling.

Pines.—Light during the next two months will be of limited duration, and sunshine can only be expected occasionally, and for so brief a period as to have little effect upon vegetation; hence the necessity of a diminished temperature, under which the plants will make more satisfactory progress than when growth is encouraged at this season by a high temperature. The main object to be secured is the maintenance of a vigorous vitality without promoting much growth, and to this end the plants should have plenty of room and a light position. If not already done the temperatures should be reduced to the winter standard—viz., for successions under ordinary treatment 55° to 60° at night and 65° by day; and in the fruiting department 60° to 70° at night, according to external conditions, with a rise of 5° by day. For young stock 55° at night is sufficient, ventilating at the top of the house at 60°, allowing the temperature to rise to 65° with liberal ventilation. Fire heat need be used only to prevent the temperature falling below 55°, the temperature at the roots being 70° to 75°. Queens which are required to start into fruit early in the ensuing year should have the heat at the roots now gradually raised to 90°. When external conditions are favourable execute with dispatch whatever may be necessary in the way of renewing fermenting beds.

PLANT HOUSES.

Greenhouse.—Heaths and other hardwooded plants are in dull weather at this season very liable to be attacked by mildew, especially plants that have grown freely during the summer, also young stock which are in a more favourable condition for its development than older and slower-growing plants. They should be laid on their sides and freely dusted with flowers of sulphur, allowing it to remain on four or five days, when it may be syringed off, or plants but slightly affected may be dusted with the sulphur; but care must be used to keep the sulphur from the soil, as, if washed down to the roots, it will do serious injury. Sulphur water is also a good remedy for mildew, 3 or 4 ozs. mixed with a gallon of water, well stirred and allowed to remain for four days. The clear water may be poured off and used, dipping small stock and syringing large plants laid on their sides over a vessel large enough to catch the water.

Liliums.—In the cultivation of Lilies it is essential to disturb the roots as little as possible at any time, and especially when active; hence potting should always be carried out as soon as the growths have died, and in the case of large masses of bulbs that it has become necessary to divide, it is important that the work be done without delay. Good fibrous loam, a fifth of decayed manure or thoroughly reduced leaf soil, and a little sand, form a suitable compost. In potting leave space over the bulbs for a top-dressing of rich compost, so that none of the roots that are formed above the bulb will remain uncovered. Do not keep them in more than an ordinary greenhouse temperature during the winter, having the soil moist until the bulbs have started into growth.

Chrysanthemum cuttings may now be inserted in small pots singly, selecting sturdy cuttings of 3 inches length, and with a small portion of root stem, placing in ashes in a cold frame kept close and shaded from sun until rooted, when ventilate freely in favourable weather. Protect in severe weather with mats.

FLOWER GARDEN.

The beds and borders present a naked uninteresting appearance unless they have been filled with some of the many dwarf and beautiful variegated shrubs, which at this season show to great advantage. These in combination with early spring-blooming plants and bulbs will afford some interest almost continuously. Complete whatever is contemplated in this respect, and make good any defects at present distinguishable. Walks require frequent attention in sweeping and rolling. Lawns can hardly have too much rolling, as, besides consolidating the surface, it improves the texture of the grass.

THE BEE-KEEPER.

PLEASURES OF BEE-KEEPING.

THE pleasures of bee-keeping, like many other enjoyments in this world, are not unalloyed. Where is the apiarian who has not felt the pain of being stung, the loss of swarms, and the disappointments of unfavourable seasons? Notwithstanding, the pleasures of bee-keeping are many and great, and many of them are enjoyed by lovers of Nature in the higher classes of society, and it is evident that the interest taken in bee-keeping is now increasing amongst different classes of the community. This is not to be wondered at, for a swarm or stock of bees is a little community by themselves, presenting features of social and active life—an organisation complete in itself, possessing instincts of wonderful industry and thrift, of order and cleanliness, of courage and self-defence. Many men choose pleasures that are not toilsome, that recreate much and cost little; and those derived from bee-keeping are amongst them. I think it is Burke who says in his "Essay on the Sublime and Beautiful," that throughout nature both the beautiful and sublime may be seen, and pleasure derived from both, and that the sublime is calculated to make the most lasting impression on the mind. And dare we not to venture to say that a close observer finds in the apiary things beautiful and things sublime—something to admire and something to astonish?

It will, I think, be admitted by many that I have had a large share of experience amongst bees. I have had considerable experience, and in looking back over the past to compare the gains and losses, the pleasure and the pains, I find that the profits and pleasures far outweigh the losses and disappointments. They may be contrasted but cannot be compared, as the preponderance is all on the happy side. The simple fact of possessing a few swarms of bees has, in my history, produced happiness, and the study of their habits has been a perennial source of enjoyment. For health of body and material comfort, as well as for mental recreation, I owe much to my bees.

In entering my garden early on a summer morning what do I find? That the bees have been out before me, and are busy carrying in the water necessary for the day before the dew has gone from the grass, and before honey can be gathered from the flowers. If I press my ear close to a hive I hear a hum of contentment and activity. Who can tell me how many nameless offices have been performed by the bees in their hive while I and other folk were asleep? Who can tell me that any of the bees sleep at all? I turn up a hive in early morning to find what

progress the bees have made during the night. Hundreds of cells have been built, hundreds of eggs have been laid, and the queen busily occupied in laying more; hundreds of maggots have been attended to in their cradle cells, hundreds more have been sealed up in order that they may be quiet and unmolested while they pass into the chrysalis state. Both the home life and night work of a bee hive are wonderful.

Some old books on bees divide the working community into classes, and tell us that each has a distinct function to perform. We thus have nursing bees, wax and comb-building bees, honey-gatherers, sentinels, &c. We have always thought that this idea is too fine-spun, or too much drawn out. On examining bees returning from the fields it will be found that while many of them have been gathering honey and pollen in the fields they have also been secreting wax, and four and six plates of wax may be seen oozing out of or being excreted from the furrows of the abdomen of each bee as it enters the hive. I have often told the readers of the *Journal of Horticulture* that the secretion of wax is voluntary on the part of the bees, and this voluntary action is a marvellous fact in their history; but I think I have stated the fact that while bees are at work in the fields they can and often do secrete wax. It is considered good work to kill two birds with one stone, but here we see that bees do more, for they perform three very important functions simultaneously in manufacturing wax while collecting both honey and pollen.

In noticing the senses of bees it will be found that they have five, all keen and interesting. The phenomena of the five senses of bees contain matter enough for a large book. Few men have power to grapple with this large subject, but the simple bee-keeper derives pleasure from noticing and knowing how useful the senses are to his bees. He knows their sense of smell is so keen that they can find the best honey within two miles of his garden, that they can find honey in the smallest flowers, and that if a single drop of honey fall on a garden walk or garden lawn it will not be overlooked or forgotten by his bees. He knows, too, they will detect by smell the presence of a strange bee in their hives.

As to their powers of sight, bees can see and follow a cricket-ball or stone as fast as it can be thrown from the hand. An American gentleman, talking to me about the powers of flight of the honey bee, said that some flies in America could follow and dance round the ears of his horse going at a full gallop. We have often been struck with the quickness of the sight and flight of bees in following an object that provoked them.

The swarming of bees is one of the most interesting and pleasure-giving outcomes of an apiary. The first sight or appearance of drones every season caused such delight in Bonar that he sat down and made himself some whisky toddy on the occasion. More apiarians than Bonar are pleased to see drones appear in the spring months. Their appearance indicates that the bees are preparing for swarming.—A. PETTIGREW, *Bowdon*.

TRADE CATALOGUES RECEIVED.

Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogues of Roses, Forest and Ornamental Trees.*

W. P. Laird & Sinclair, Dundee, Scotland.—*Catalogues of Trees and Shrubs and General Nursery Stock.*

H. & F. Sharpe, Wisbech.—*List of Potatoes.*

William Paul & Son, Waltham Cross, Herts.—*Catalogue of Hardy Trees and Shrubs.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Address (W. W. H.).—The address you require is, we think, Messrs. Boulton & Paul, Norwich, and you had better submit the inquiry to them that you have sent to us.

American Blackberries (A. H.).—They can be obtained from any of the principal nurserymen.

Work on Hybridising (M. B.).—You will find much information upon this subject in "Cultivated Plants, their Propagation and Improvement," by Mr. F. W. Burbidge, and published by William Blackwood & Sons, Edinburgh and London.

Abies Albertiana (F. G.).—If the specimens are similar in habit they are both forms of the same species, as there is considerable variation in many Conifers that are raised from seed, but we consider No. 2 the typical example of Prince Albert's Spruce.

Grapes Shrivelling (A. B. C.).—We are unable to inform you why your Mrs. Pince's Grapes have not finished satisfactorily. Possibly the Vine is not in a healthy state in consequence of defective root-action, or the crop may have been too heavy. We have cut very good Grapes of Mrs. Pince grown on a Black Hamburgh stock.

Winter-flowering Begonias (A Young Gardener).—The following will no doubt meet your requirements, as they are free-growing and flowering—*Begonia insignis*, *B. semperflorens*, *B. weltoniensis*, *B. Ingrami*, and *B. parviflora* or *B. Richardsiana*.

Begonias (C. B.).—It is not usual for those who have raised new plants to send seeds or cuttings to applicants for them. They are only sent for trial to growers selected by the raisers, and on the understanding that no portions of the plants will be distributed by those to whom they are entrusted. You will probably hear more about the plants you name eventually.

Advice to Young Gardeners (One in Hope).—We are glad to learn that you, with others, are endeavouring to profit by the advice to which you refer. Your letter indicates a laudable desire to do what is right, and we trust you will continue your endeavours towards that end. We would also advise you to study grammar and orthography. In your short note there are six errors in spelling, and a still greater number of grammatical inaccuracies.

Dwarf Peas (H. W.).—Two good dwarf Peas are Carter's Extra Early Premier Gem and Suttons' Bijou, but we do not know which would suit your soil and purpose the best. You had better try them both. We do not know what "conservatory creeper" would resist mealy bug; perhaps some of our readers can supply the information. A good book, such as you appear to require, is Brown's "Manual of Botany," published by Messrs. Blackwood & Sons, London and Edinburgh. The price is 12s. 6d.

Marechal Niel Roses for Christmas (W. H. C.).—So long as the present mild weather continues the plants now bearing flower buds may be kept in the greenhouse; but if by the occurrence of severe weather the temperature of the house should fall below 40° the flowers will probably fail to expand, but they would open if the plants were placed in the Cucumber house. As to when they should be placed there depends entirely on the weather and the size of the buds; flowers can only be had on a given day by the exercise of sound judgment on the part of the cultivator. If the pots are filled with roots weak liquid manure would be an advantage, not otherwise.

Strawberries Flowering (R. E. M.).—The plants received a check by the hot weather in early summer, and the mildness of the autumn has accelerated their flowering. Probably if some of the plants were potted—those with the fruit half grown—the fruit would ripen in a light warm greenhouse. Many cultivators have ripe Strawberries at Christmas, but the plants require careful management. You may remove the flowers as you propose, but the crop next summer can scarcely be expected to prove so good as if the plants had not flowered now.

Lapageria alba (F. Z.).—It will succeed in a conservatory in which the temperature does not fall below 40° in the winter, but if the minimum is 45° it will be better, and a rather shaded position in summer is advantageous. Suitable soil consists of turfy peat, a little loam, and lumps of charcoal. Good plants can be grown in 11-inch or 13-inch pots, the shoots being trained to a trellis, a flat one being most suitable. Whether grown in a border or pot, good drainage should be secured. A border 4 feet long, 2 feet wide, and 2 feet deep, clear of the drainage, will support a large plant. The drainage should be very good, for, during the season of growth the watering must be plentiful, and at no time must the soil be allowed to become dry. During the growing season a plant in a large pot will require a gallon of water daily, and one in a border thrice the quantity.

Rabbits Injuring Trees and Shrubs (Mrs. S.).—In an article upon the above subject in this Journal, page 136, vol. xxxviii., the writer summarises his experience in the severe winters of 1878 and 1879 as follows:—Beech, Cupressus Lawsoniana, Thujaopsis borealis, White American Spruce, Portugal Laurels, English Yew, Retinospora pisifera, Wellingtonias, and Piceas (except P. pectinata) did not suffer to such an extent as to interfere with their after growth; while Rhododendrons, Kalmias, Andromedas, Irish Yews, Corsican Pine, Birch, and Alder received no injury. Fuller particulars respecting trees and shrubs which were greatly injured will be found in the article in question.

Liliums (Somerset).—To have the varieties of *Lilium lancifolium* in flower in August and September the plants should be wintered with the pots plunged in ashes in a cold frame or pit, affording protection over the lights in severe weather. In May the plants may be placed outdoors on ashes in a sheltered sunny position, and if duly attended to with water they will flower at the time required, being placed under glass when the flowers are expanding. *Lilium longiflorum* may be treated similarly, but will not flower so late. After the buds are formed the plants may be placed at the north side of a wall so as to retard the flowering. *L. Thunbergianum* is early-flowering, but it may be retarded as advised for *L. longiflorum*. For your purpose *L. lancifolium* vars. are far the best.

Cucumber House (S. C. F.).—The lights make no difference as regards their width for the growth of Cucumbers, as the trellis, or wires forming it, require to be fixed longitudinally or lengthwise of the house, 30 to 36 inches being a sufficient distance apart for the plants. We should have ventilators at the top of the house in the roof and not in the back wall. To have the roof lights at an angle of 45° the back wall will need to be the same height as the width of the house, reckoning from the top of the front lights, which are 2 feet 6 inches; the width of the house in that case will be 8 feet; the height of the back wall will be, your having 2 feet of brickwork in front in addition to the front lights, 12 feet 6 inches. An angle of 35° is more suitable, the width of the house 9 feet inside, and the back wall about 10 feet 6 inches, which is allowing for 2 feet of brickwork under the front lights. Two rows of 4-inch piping will be needed for bottom heat to the bed, and three rows for top heat, two rows at the front of the house and the other adjoining the pathway and just over the bed, this row being filled with evaporation troughs.

Pruning and Potting Neriums (*J. Ellerton*).—The flowers are borne from the points of last year's shoots, and the flower stems have usually flower buds that do not all expand in one season, therefore leave them until another season. Plants that become ill-shaped should be cut down in April, foregoing flowering for a season, encouraging growth by placing them in a moist and warm atmosphere, and in July remove them to a lighter position, repotting when the shoots are a few inches long, and whilst in heat. Neriums are better under rather than over-potted. Three parts fibrous loam, one part each of sandy peat and leaf soil, and one-sixth of sand, form a suitable compost. Cuttings of young shoots rather firmly inserted in sand, under a bellglass, in bottom heat of 75°, shaded, or shoots inserted in bottles of water in the sun, root freely.

Tuberose Culture (*A. J. D.*).—Mr. Taylor has described his method of culture as follows—The imported bulbs are received in December or January, when they are at once potted singly in 6-inch pots, and plunged where they can have the benefit of bottom heat to start them into growth. After they once start fairly they can be grown in a lower temperature and without bottom heat; and when all danger of frost is over, if they are not wanted to flower early, they can be placed in a deep cold pit and be merely protected from the worst of the weather till the flowers commence opening, when they will be improved by being taken into the greenhouse. Plants so treated will generally flower some time between July and October. After flowering most people throw them away as useless. This is quite a mistake, as I will endeavour to prove. Mine are at once shifted into 7 or 8-inch pots without disturbing the ball, using a good rich compost consisting of turfy loam with a little decayed manure, a few half-inch bones, and a little charcoal. They are again placed in a warm house and soon commence throwing up shoots, one of which only is left to grow, and it soon forms a new bulb on the top of the old one, which will not fail in its turn to send up a good strong flower stem. The American variety known as The Pearl is one of the best, and is largely grown by those engaged in supplying cut flowers for Covent Garden Market.

Pickling Tomatoes (*Mrs. W. E.*).—Scald and peel green Tomatoes. Lay them on dishes, and strew salt thickly over them. Let them stand twenty-four hours, occasionally pouring off the liquor that the salt extracts. Drain them and gently squeeze them, as it is this juice that weakens the vinegar and makes them spoil. Take a large jar, put in a layer of Tomatoes, then a layer of sliced onions, mustard seed, cloves, and white pepper, or whole black pepper; or two pods of red pepper may be broken up and put in the jar. When the jar is full pour very strong vinegar over, and in a few days they will be ready for use and will keep well. They should be kept in a cool place.

Early Cinerarias (*D. H.*).—They may be flowered in autumn and early winter, the seed being sown in March in a hotbed, and the plants grown throughout the summer in cold frames, shifting them into their blooming pots in August, and removing them in September to a light airy position where they will have a temperature of 45° to 50° from fire heat. If kept in an ordinary greenhouse they will not flower until the new year.

Names of Fruits.—We have many times notified that only six varieties of fruits can be named at once; still large packages reach us, the contents of which cannot be examined. Some fruits are not named because the sender's name does not accompany them, and we cannot always determine to whom the respective parcels belong, even by the aid of letters received by post. Pears, we have previously intimated, ought to be ripe or approaching ripeness when sent, or a number of them cannot be identified. All packages must be carriage paid; unpaid parcels are sent every week that are not taken in. The fee for naming fruit to non-subscribers is 5s. It is important that these conditions be attended to for preventing disappointment. (*H. Galton*).—It is the true Broad-eyed Pippin. Court Pendu Plat is quite different from this. The fungoid affection is no doubt caused by the humid situation. It is difficult to advise what to do under the circumstances, since draining is probably an impossibility. (*Ramatho*).—1, Wyken Pippin; 2, not known; 3, Golden Winter Pearmain; 4, Sops-in-wine; 5, Cox's Orange Pippin. (*S. H.*).—Apple Hollandbury. Small Pear Nutmeg, called also Besi de Caissoy; the larger, Duchesse d'Orleans. The plant is referred to below. (*A. Reader*).—1, Not known; 2, Sturmer Pippin; 3, Franklin's Golden Pippin; 4, Golden Winter Pearmain; 5, Warner's King. (*J. Harper*).—1, Golden Noble; 2, rotten; 3, bad specimen; 4, Formosa Pippin; 5, Court Pendu Plat.

Names of Plants (*A. C.*).—*Euonymus europæus fructu-albo*, the White-fruited European Spindle Tree. (*S. H.*).—The specimen you sent was very diminutive, but appears to be an *Erigeron*, probably *E. pusillum*.

COVENT GARDEN MARKET.—NOVEMBER 30.

TRADE remains the same, business being quiet with scarcely any alteration.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1/2 sieve	1 0 to 4 6	Lemons.....	1/2 case	18 0 to 30 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	0 0 0 0
Cherries.....	1/2 lb.	0 0 0 0	Nectarines..	dozen	0 0 0 0
Chestnuts.....	bushel	16 0 0 0	Oranges.....	1/2 100	4 0 6 0
Currants, Black..	1/2 sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
" Red....	1/2 sieve	0 0 0 0	Pears, kitchen..	dozen	1 0 1 6
Figs.....	dozen	0 0 0 0	dessert.....	dozen	1 0 3 0
Filberts.....	1/2 lb.	0 0 0 0	Pine Apples....	1/2 lb.	1 6 2 0
Cobs.....	1/2 100 lb.	75 0 77 6	Strawberries....	per lb.	0 0 0 0
Gooseberries....	1/2 sieve	0 0 0 0	Walnuts.....	bushel	7 0 3 0
Grapes.....	1/2 lb.	0 6 4 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	1/2 lb.	0 3 0 6	Onions.....	bushel	3 6 5 6
Beet, Red.....	dozen	1 0 2 0	" " " "	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	1/2 sieve	2 0 2 6	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushel	2 6 4 0
Carrots.....	bunch	0 4 0 6	" " " "	dozen	3 0 4 6
Capstems.....	1/2 100	1 6 2 0	Radishes.....	doz. bunches	1 6 2 0
Cauliflowers.....	dozen	0 0 3 6	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsify.....	bundle	1 0 0 0
Coleworts.....	doz. bunches	2 0 4 0	Scorzenera.....	bundle	1 6 0 0
Cucumbers.....	each	0 4 0 6	Seakale.....	basket	2 0 2 3
Endive.....	dozen	1 0 2 0	Shallots.....	1/2 lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 0
Garlic.....	1/2 lb.	0 6 0 0	Tomatoes.....	1/2 lb.	3 8 0 1
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	3 4 0 9
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



POULTRY AND PIGEON CHRONICLE.

STABLE ACCOMMODATION FOR HORSES.

(Continued from page 487.)

THE earth floors of stalls for horses should be made on the surface a few inches below the pathway behind the stall in order to prevent the urine leaving the earthen surface, for it will be instantly absorbed if it does not overflow the boundary of the stall. The urine of the horse is, we consider, much stronger in ammonia than that of the horned cattle, as evidenced by the more pungent effluvia arising from it; the effect of the earth, however, in fixing and deodorising the noxious vapours is instantaneous, and ill odour is entirely absent in a well-managed earth floor. We cannot, however, refrain from noticing a novel application of vulcanised indiarubber called "The Vale of White Horse Patent Bedding," to supersede litter for stables, which was lately exhibited, and has found, it is stated, considerable favour with the owners of valuable horses. It consists of a bed sheet of vulcanised rubber, on which another sheet is corrugated in a way to make it a warm, dry, elastic mattress for a horse to lie or stand on. In point of economy, salubrity, and for the preservation of horses' feet, it has claims which seem to meet with much attention. As we have not yet seen the mattress we are not prepared to criticise it, but it must be preferable at any rate to the various materials employed in constructing impervious floors for stables; and with regard to economy, that must consist in the saving of straw, but the actual salubrity is not so easily imagined. We apprehend that the drainage is effected by the corrugated or fluted surface, and in this case it would be led by the incline of the floor to the back part of the stall and in direct communication with the open gutter, into which all liquid portions would either flow or be swept away as in the absence of the mattress. It seems to us very important that the floor on which the mattress is to rest should not be composed of any hard material like clinker brick, as the friction and wear of the mattress would be very great, and therefore we recommend that the earth floor be laid as usual, but with an incline for the mattress to rest upon; for not only would the wear and friction be reduced to a minimum, but in the event of any urine overflowing the margin of the mattress on either side it would be immediately absorbed and rendered innocuous by its contact with the earth.

We must now consider the advantages of a loose box with earth floor which we have used for our nag horses for many years. One great point is, that in the event of the earth being laid down quite fine and dry, and well rammed to make a level and firm surface, and laid 2 feet in depth, that, unlike the earth floor to a stall, it will not require any renewal or removal of earth for several years, especially if a strong clay or calcareous loam is used, and yet be free from any unpleasant exhalation during the whole period. In fact, it may in some instances last without changing the floor for four or five years. This plan of management of a loose box is unobjectionable in every respect if ordinary care is taken with the ventilation and the daily removal of solid excrement, and the floor swept with a hard broom. The feet of the horse will be of course dry at times, but not so much so as when standing on clinker bricks, nor will the stamping of the horse throw the shoe, but at the same time the lying for the animal will be first-rate, the advantages of which compared with any impervious floor cannot be fully estimated except

hy practical experience. Especially it is of importance to consider that during the absence of the grooms by day or night there is no necessity for immediate cleansing the earth floor, because the urine is instantaneously absorbed, fixed, and deodorised, whereas that on an impervious floor, when it comes in contact with broken straw or dirt of any kind, which if not immediately removed the evaporation of ammoniacal gases instantly commences, and increases until the drain, gutter, and floor are flushed and swept, and which cannot be, or is not usually, done during night.

We have now to refer to our third system alluded to—namely, that of accommodation by boxes with earth at the bottom and accumulation of litter thereon. Perhaps we cannot do better than describe where this plan was thoroughly carried out with great and careful detail. The stables were designed for the accommodation of some valuable race horses about twenty-three years ago. It consisted of twelve boxes 13 feet square, divided by stout boarding and open iron railwork above. The boxes were excavated 2 feet below the pathway and concreted at the bottom and sides, and the door for entrance was a sliding one, which is much to be preferred to a door on hinges, for the latter when opening into the pathway is sometimes the cause of accidents. The centre pathway was 9 feet wide, with a tramway along the centre, upon which was worked two trucks, one for conveying food, and the other for removal of dung and supplying straw and earth to the boxes. This tramway was conveniently laid in communication at one end of the building and passing between the stores for corn, hay, and straw, the saddle and harness rooms, and leading through the centre of the coach-houses at the other end, through which any refuse may be conveyed by truck. The door of the boxes was placed on one side of the front of the box; on the other half of the front the manger was placed inside of sufficient capacity to hold both corn, hay, chaff, and one division for water, in order that the horses may be fed and watered without the groom entering the box, for a shutter was made to let down and the food supplied out of the truck on the tramway. The roof of the stable was an open-ceiled one inside, with a false roof about 18 inches below the ridge, with an opening of 9 inches and louver board, but this space was secured by perforated zinc plating. In this way good ventilation was obtained, for also over each alternate box a swing window was placed on either side of the building, not only giving ample light, but assisting in ventilation if required. Also at each end of the centre pathway, as between the corn stores at one end and the carriage offices at the other, sliding doors were placed, which may be opened for ventilation or closed to prevent draught. The entrance for the horses was in the centre of the eastern side of the building, the site of which was north and south from end to end and well sheltered by trees and shrubs. The boxes were filled at the bottom with dry prepared loamy soil, and rammed down to the depth of about 8 inches, except at the entrance for the convenience of the horse passing in and out, where it was raised nearly to the threshold. Straw bedding was used as cleanliness required, but always sparingly. No excrement was removed but spread and covered with litter-straw, which was supplied to the stores in single bond trusses, which were cut with a thatcher's knife at the bond, which rendered the straw short enough to prevent its becoming disturbed on the surface by the horses' feet. The straw may now, however, be supplied in lengths of about 15 inches as cut by the chaff-cutting machine.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This work now consists of fallow-ploughing land which has been autumn-cultivated, and if any case of hindrance has occurred by weather preventing the couch being cleared off it may now be carted away to heap after being collected in rows by the forks. Sometimes we have known farmers plough it under; but it does not answer, because, instead of dying during the winter, it is found ready to start into growth in the spring. We, however, now are alluding to that portion of couch which may have been brought to the surface only, without sufficient time and labour having been bestowed upon it to free it from the soil. In this case, when not freed from the earth, it is admirably adapted for laying out as manure on any dry turf land where it can be carted on to without injuring the pasture by treading and cart tracks. We have frequently found that it improves pastures. Some persons fear that the couch may take root and render the grass land foul, but it is not so, for the worms pull it into their holes; it then acts as manure in decaying. In fact, nothing ever can grow so as to compete with old turf, for it has possession of the surface; and even when all the rubbish, including seeds of weeds obtained when winnowing corn, is laid upon old pasture land, it will not grow, but decays and acts as manure only.

Hand Labour.—Hedging, ditching, banking, draining, and such

work now prevail. There is, however, the pitting of roots in the field to be done, which answers a good purpose, as it protects the roots against depredation by game and rabbits in a severe winter. In a mild one it prevents the sprouting and spring growth or delays it, and therefore maintains the full feeding value of the roots. When in pits the roots can be carted away to the homestead for feeding young stock in the yards and store pigs; at the same time the Swedes are useful upon many farms where Mangold is not grown much, or has failed, for the feeding of fattening bullocks in the boxes, and also for dairy cows in the strawyards, as it maintains them in useful condition until calving time arrives.

Live Stock.—The wether sheep or fattening ewes should now receive a full allowance of cake and meal of beans, peas, or maize, mixed with their cut roots in the troughs. Cotton cake made from decorticated seed is better for store or milking stock than fattening animals, and answers a good purpose when given to the early-lambing horned ewes, which have lately, together with their lambs, been put upon root-feeding. By all means we advise the home farmer to have the roots prepared clean and passed through Gardner's cutter, even for the common Turnips, which some farmers will not cut, as they are said to be soft enough to be eaten without cutting, and so they are for stock sheep; but for fattening animals they ought to have eaten their allowance of roots and the meal mixed from the troughs and lie down, instead of being engaged so long cutting their own food, which will not allow them much time for rest. The lambs, too, are not old enough to eat much, but they may run forward and eat the grains of roots with some hay and cake in their troughs. To make first-quality lambs they should only go forward through the lamb-gate into a fold which has been cleared of the growing roots, so that they may get only such food as may be considered not only the most fattening, but also the best to keep them in health. We do not like to see the lambs running forward eating the tops of Swedes or Turnips in a frosty morning: large numbers are annually lost by diarrhoea from this system of feeding. We, therefore, always feed our lambs entirely on prepared food in troughs, of the finest Dutch or hop-clover hay cut into chaff, of either White Carrots or Drumhead Savoy Cabbage passed twice through the cutter and mixed with cake meal, bean, or barleymeal, and with this food they will eat a good portion at the earliest period. At the same time in covered troughs with back to the wind we place split beans or grey peas mixed with broken cake; and as young lambs will go to the troughs for shelter they are then often induced to eat cake and pulse at the earliest period. This is a matter of great importance, not only for them, but also for the ewes, because a well-fed lamb will not depend so much upon the mother's milk, the ewe gaining flesh whilst it gives milk, and in consequence we generally sell our ewes and lambs about the same time to the butcher, as they will both be in prime condition if fed as above directed.

LORD TREDEGAR'S CATTLE SHOW.—At this Show, which was held on the 22nd ult., the piece of plate, value twenty guineas, offered for the best male horned breeding animal selected from any class in the yard, the gift of the Corporation of Newport, was won by Mr. T. J. Carwardine, Stockton Bury, Leominster, with "Lady Carew 4th;" and the corresponding prize for the best female animal, the gift of Samuel Homfray, Esq., Glen Usk, Newport, was won by Mr. B. St. John Ackers, Prinknash Park, Painswick, Gloucestershire, with "Lord Wilton."

WE understand that "Spratt's Patent Food," which was given successfully to the dogs at the Birmingham National Dog Show this week, will also be used for feeding the dogs at the Kennel Club Show, which commences at the Alexandra Palace on the 9th December.



FAMOUS POULTRY YARDS.

KNIGHTON VICARAGE—THE REV. H. M. AND MRS. RICKETTS.

(Continued from page 440.)

WE must proceed from the chicken lawn where we paused. We did not, however, walk once straight through this range of yards in order as we have described them, but returned again and again during a pleasant two-days visit to admire their admirable contrivance and pretty inmates. Hence we passed through a door in the stone wall which backs the yards to other runs, of a kind which all fanciers find useful, but which do not pretend to be ornamental. Here in a back yard were many hens of many varieties, good layers of eggs, and foster-mothers of more treasured chickens. Close by, in a wired enclosure, were a party of cocks, about twenty in number, all running together. The moult always has a somewhat subduing effect on the spirits, but still they struck us as being the most extraordinarily happy family we ever saw. Among them we specially admired a White Minorca, nearly

through his moult, sprightly, and in trim condition, and a Partridge Cochin deep and densely fluffy. Through a passage we came to another yard, and here in another wired enclosure were more cocks of many kinds, and hard by a most necessary adjunct to every large poultry establishment—the hospital. It is a dry building with lots of pens against the wall, and can be heated, when necessary, with a little gas stove. Next came the sitting-house, a room, as it should be, devoted entirely to its important purpose. We particularly liked the construction of some of the sitting nests. They are simply boxes without bottoms, perforated with holes to admit air, and one side opening on a hinge serves as a door. The hens thus sit on the ground. The advantage of such boxes is that they ensure moisture from below to the egg and absolute privacy to the hen, while they can easily be thoroughly purified.

We must now attempt, however inadequately, to describe the other great range of nearly fifty runs, the special care of Mr. Ricketts, devoted to the larger breeds. We have said that on the right of the entrance a grass field is seen sloping away eastwards from the garden lawn. About this they are ranged. Most of them open into the field, but as at the time of our visit their inmates were moulting, when fowls require less range, the field was tenanted by troops of pullets of many kinds. Among them were a number of Buff Cochins, good in shape and fluff, chiefly of Tomlinson's strain. We helped to select a promising half-dozen of these for next year's stock. On the left, as one goes down the field, are a long double row of yards, the front ones opening into the field, the back line accessible from a path behind. Being intended for large fowls, these are, of course, far larger than the gravelled range before described, and all are of grass. They were once larger still, each having consisted of two of the present runs. We should have been inclined to have them so, knowing well the great difficulty of keeping small grass runs fresh and green, but the growth of the establishment and the multitudes of the breeds kept necessitated their division into two rows. In every one is a comfortable dry house. Among their inmates were Cochins of all kinds, Dorkings of all kinds, and many others too, but our memory fails us to record the order of them all. Beyond this double row, still on the left, is a very large house; in the back part of it roost the troop of several dozen pullets which we have seen running over the paddock. In front are some half dozen small runs, most useful places for single cocks and moulting birds, each with a separate roosting place inside the house. Hence at right angles to the double line of yards runs off towards the right another range, cutting off the smaller end of the paddock. All open into the front paddock for the daily exercise of the birds when necessary, but their grass runs are hardly so large as the others, and would, we think, be better gravelled. Here were Andalusians and Leghorns, Game of various kinds, and Hamburgs, and Derbyshire Redcaps, fine strong-looking birds and peculiarly rosy for the time of year, somewhat like large Golden-spangled Hamburgs; and a pen of curious Eastern fowls brought from Constantinople, of gold colour and brown with small dark crests.

Through a gate near the large house, which we left on our left hand, is yet another row of houses and runs all on the same plan, and all opening into the other part of the paddock behind the last-named row. Here were Spanish, Langshans, and more Cochins. But we need not enumerate all the breeds; to do so would simply be to catalogue the known breeds of larger fowls. We had seen cursorily the whole of this marvellous establishment; it remained to inspect more carefully the inmates of many a pen, especially some fine Buff Cochins in the back row of the double line of runs, so we turned our steps towards the garden by a pretty path between them and a shrubbery, whence rapidly descends a precipice towards the river Teme below, called the Tees by a printer's error in the former part of our description. We had had a charming sight, one not to be enjoyed elsewhere in England, we believe. We should advise our fancier friends, who have the chance, to ask the favour of a view of the famous Knighton yards.—C.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at Bingley Hall, Birmingham, on Monday, the 28th November. There were present the Hon. and Rev. F. G. Dutton (in the chair), the Rev. W. Serjeantson, and Messrs. A. Comyns, A. Darby, L. C. C. R. Norris, and E. Pritchard.

CLUB SHOW.—The proof schedule was revised, and classes were added for Black Cochins, French (any other variety than Houdans or Crève Cœurs), and Duckwing Game. The list of Judges with the classes upon which they are to adjudicate, submitted by the Secretary, was revised and finally settled.

Messrs. A. Comyns and H. Radclyffe Dugmore were appointed

Poultry Club Stewards to be present and supervise the arrangements at the Show on behalf of the Club, and it was arranged that neither of these gentlemen should take part in the competition.

The number of cups to be offered was also discussed, and it was decided that there should be thirteen for the poultry classes, varying in value from five guineas to two guineas, and to be given in addition to the money prizes in all cases.

SHOWS TO BE HELD UNDER CLUB RULES.—Communications from the Secretaries of the Uttoxeter, Hednesford, Waverley, and Gosforth (Newcastle-on-Tyne) Shows, stating that it was intended to hold these Shows under Club rules, were read, and subscriptions were granted in aid of their respective funds.

DISQUALIFICATIONS.—Three cases of trimming were brought under the notice of the Committee. Directions were given to the Secretary to ascertain further particulars, and the consideration of these matters was postponed until the next meeting.

MEETINGS OF THE COMMITTEE.—It was decided that in order to facilitate the election of those desiring to avail themselves of the privileges of membership of the Club at the forthcoming Cambridge Show, two meetings of the Committee should be held in December, the first on Friday the 9th inst., and the second on Friday the 16th inst., the latter date being the latest at which an election would give the benefits of membership at the Club Show.—ALEX. COMYNS, Hon. Sec., 47, Chancery Lane, Dec. 1st.

BIRMINGHAM SHOW.

THIS great Show, which alone contests with the annual meeting at Sydenham for the premier position in importance and numbers, commenced on Saturday last. The entries both in poultry and Pigeons were more numerous than ever, the former numbering 2412 pens, and the latter 903. Birmingham, being eminently a practical place, naturally gives more prominence to the poultry than to the Pigeon department, and it is chiefly in the latter that the numbers at Birmingham fall short of those at the Palace.

At Bingley Hall even a larger number of familiar faces are to be seen year after year than at the Palace; and if some of the old ones are, alas! wanting, there are many younger ones which are gradually becoming sufficiently familiar to fill up the blank.

Never within our recollection has the quality of the birds in both sections been better than it is this year. There may be a falling-off in some classes, but the average taken over the whole Show is far above what we have been accustomed to.

Brahmas still hold the first position, as they have now done for some years, Sir Henry Thompson's champion £60 bird coming first among the cupwinners. The first prize for cockerels again goes to Stoke Park, though we can hardly say that we like the winner quite so much as his yard mates at the Palace, one of which has here gained second for his new owner. Mr. Percival won the cup with a hen which we have not seen this season, but which much reminds us of his winner of last year. Mr. Norris's winning hen at the Palace had here to take second place, although we much doubt whether she will not regain her lost position when she has fully moulted out. In the pullet class public opinion has for once had its effect. Never before do we remember Mr. Teebay to have given way to the popular voice, but he seems here to have recognised the force of the familiar adage, and has completely upset his own awards at the Palace. The first-prize pullet came from the yards of the Rev. T. C. Peake, and is nicely pencilled and of clear grey colour; but it seems to us that if Mr. Teebay desires to restore the Brahma hens to what they once were he must go more for size and shape, and not let pencilling, even though of so excellent a type as that we have here, have such undue weight. There were many excellent pullets in the class of good Brahma type, and amongst the prizewinners we especially noted the fourth of Mr. Norris as being large, shapely, good in colour, and nicely pencilled, though hardly quite out yet. She must surely have her revenge later.

Mr. Leno's awards in the Light Brahma classes were generally well received. Here Mr. G. H. Wood took premier position both in cocks and cockerels, closely pressed in the former, however, by Mr. Norris and Mr. Percival, and in the latter by Mr. Haines and Mr. F. S. Clarke. There seems to be some division of opinion as to the correct type of these birds, and in our views Mr. Leno's inclines rather to give undue prominence to birds which are very short in leg and rather of a Cochin stamp. In the hens and pullets Mr. Norris and Mr. Haines were respectively first, the former taking the cup with his well-known pullet of last year. Messrs. Birch and Mr. G. H. Wood respectively stood second in each class. Mr. Norris's hen is a lovely bird, but even her owner pronounces her as rather too much of a Cochin for his fancy. You can hardly have a Brahma hen too short in the leg, but then so much roundness and extreme fluffiness which are characteristic of a Cochin are hardly desirable. We could not entirely agree with the pullet awards, and thought several in the class better than the first.

The Dorkings were more numerous and better in quality than last year. We think they are rather hardly treated in the matter of prize money, and would suggest to the Birmingham Committee the advisability of increasing the number and amount of the prizes. A first prize of £2 and second of £1 is hardly adequate when the entry is 8s. per pen. In the Coloured birds Mr. Butler Smith, Mr. Cranston, the

Rev. H. R. Pecl, and the Messrs. J. A. and M. F. Smyth, were the principal prizewinners. In Silver-Greys Mr. Cranston carried everything before him. He is a fancier who will put the Dorking breeders on their mettle. He seems to be able to get the Silver-Greys almost equal in size to the Coloured. In the variety Dorking classes Mr. J. E. Pilgrim, Col. Logan, and the Countess of Dartmouth and Mr. O. E. Cresswell were the most successful exhibitors, the prizewinners being, with the exception of those from Patshull (which were Cuckoos), Whites. There is room here for some improvement in size, but this, we believe, is a difficult point to get.

Cochins were numerous and good, especially the Buffs, where Mrs. Barton, Mr. H. C. While, Mr. G. H. Proctor, and Mr. Henry Tomlinson were the winners of cups or firsts. Mr. While's winning cockerel was, however, closely pressed by Mr. Stanton's second-prize bird, which, though hardly so even in colour, had more size and width. Mr. Tomlinson's pullet was easily ahead in a class of fifty-five. We noticed in her a peculiarity which we do not remember to have before observed—namely, that all the feathers on her back and saddle were edged or laced with a fine golden fringe. This, though a little spoiling the uniformity of colour, had a very charming effect. The Partridge birds were not so numerous as the Buffs. The contest for the cup for cock or cockerel between Mr. R. P. Percival's old bird and Mr. G. H. Wood's cockerel was somewhat close, but, as we think rightly, resulted in the coveted honour going to the latter. In hens and pullets there was again a want of decision on the Judges' part as to type. It is certainly time that Partridge Cochin breeders had some means of knowing what they are to breed for. Mr. Southern was first with a finely marked hen, and took the cup with a pullet of somewhat similar stamp, thus almost completely reversing the Palace awards. In White cocks or cockerels Mr. A. Darby deservedly had his old place with grand birds, and only yielded one point in hens and pullets respectively to Mr. Percival, whose large, shapely, and clear-coloured hen took the cup, and to Mr. Chase, whose pullet stood first in a nice class. Blacks were not very numerously represented. Mr. Darby, Lady Gwydyr, Mr. R. S. Williamson, and Mr. Lurgen dividing the honours amongst them; the lion's share, however, falling to Mr. Darby.

Langshans do not seem to make any great strides in popular favour or to show any great advance in quality. The cup here went to Mr. R. H. Bush with a cockerel.

In Malays the Rev. A. G. Brooke and Mr. G. Burnell were each awarded cups; the former for a fine cockerel, and the latter for a hen.

The French breeds were only moderately represented as to numbers, the Houdans being most numerous. Mrs. David Lane was here most successful, taking the cup and a first with fine birds. In Crève-Cœurs Dr. Lloyd, Mr. Cannan, Mr. Jackson, and Mr. J. T. Calvert all showed excellent birds, and to the former was awarded the cup.

Spanish seemed to us to show rather a falling-off in quality of face, roughness and coarseness of texture being somewhat prominent. Mr. J. Bolton and Mr. William Croke each had a cup, the former also taking first prize, and a similar honour being awarded to Lady Allsopp.

Andalusians were well represented, and seemed to be advancing in popular favour. Mr. Brooke and Mr. R. A. Boissier had here each a first.

The white carlobe seems to be a particularly difficult point in the Leghorns, and we are not sure that undue prominence has not been attached to it. They are essentially laying birds, and it seems a pity that they should be spoiled as such by undue striving for what after all is a minor point. Mr. W. Bradbury here deservedly carried off all the prizes.

Plymouth Rocks, under the auspices of the Club, seem to be making rapid strides. There were eighteen entries, and though to our eyes they do not present many signs of beauty, still their first-rate useful qualities should recommend them to general notice. Mr. Stevens here stood first, followed by Mr. Bradbury.

Minorcas were not numerously represented, although a cup was offered for them. This was awarded to Mrs. Baskervill.

Polish had a very liberal classification, but did not come out in very large numbers, the average for the twelve classes being only eight. The quality was, however, good, except that we did not like to see quite so much white in the crests of the Golden birds, and we think that there is a tendency to carry the plucking of the black feathers from the front of the crests of the White-crested Blacks to an extreme. The cup went to Mr. C. H. Huish; and Mr. Rawnsley, Mr. Unsworth, Miss B. Beldon, and Mr. G. C. Adkins were also winners of numerous prizes.

In the Sultans we seemed to recognise the hen in Miss Beldon's prize pen as being the same large-crested spurred hen that was shown by Mr. Atkinson at the Palace, and previously by Mr. Beldon elsewhere. She is of first-rate quality, and well worthy of her honours, to whomsoever they may be justly attributed.

Mr. Darby was again to the front in Silkies, and Mr. O. E. Cresswell here showed a nice pair of Japanese Silkies which were highly commended.

The Game classes were so numerous that we cannot pretend to go into them in detail. Captain Heaton's old Black Red, which he claimed from Mr. Lyon last season at £100 10s., took the prize for the best Game cock in the Exhibition, and also as a matter of course Messrs. Spratt's silver cup for the best Black-breasted Red, cock or cockerel. Mr. Lyon was a second time successful in carrying off the challenge cup, value fifty guineas, for the best bred Black Red cockerel. This is the second consecutive season in which he has

gained this distinction, and he has but to add one more to the list of his triumphs to become the permanent owner of this coveted piece of plate. The £30 challenge cup for the best Black Red pullet, which also fell to Mr. Lyon last year, was this year wrested from him by Messrs. J. A. and H. A. Staveley. The winning of these prizes under such a judge as Mr. J. H. Smith, and in such classes, is sufficient evidence of the excellence of the birds to which they were awarded, and we need not comment further upon it.

Aseels still seem to find favour amongst their supporters, Miss Mortimer easily holding her own in both classes.

Hamburgs were only moderate classes as to numbers, but were generally good in quality. The cups went here to Mr. James Long and J. W. Kelleway for Blacks, Mr. William Cowan for Golden-pencilled, Mr. Caleb May for Golden-spangled, S. Fielding for Silver-pencilled, and Mr. H. Beldon for Golden-pencilled birds of the high quality which these exhibitors' birds usually attain. It seems a pity that the prizewinning should be here in the hands of so few, but we hardly see how this can be avoided.

In the variety class Mrs. Muir deservedly took first with a fine pair of Scotch Greys; second went to Buff Polish, and third to La Flèche, both good pens. The Eymore Blacks again caught Mr. Burnell's fancy, but this time only got a high commendation.

The cup for Bantams other than Game was awarded to the Rev. W. Serjeantson with a beautiful pair of Sebrights.

A flagrant case of attempted fraud was discovered in the White Bantam class, where the birds of Mr. Sam D. Rhodes, to which a prize had been awarded, were disqualified on account of false sickle feathers having been inserted in the cock's tail. This had been so skilfully effected that there was nothing in the appearance of the bird to excite the slightest suspicion, and it was only through the fact that a Bantam breeder who had observed the same bird at the Crystal Palace with very short sickle feathers being surprised to see the length which these feathers had now attained, drew the attention of some other fanciers to the matter, that an examination was requested and the insertion of the feathers discovered. We trust that the just punishment which followed the discovery of this case will be a warning to others not to attempt such practices, which are a disgrace to the poultry fancy, and have occasioned the retirement from its ranks of many honourable men.

Game Bantams were not nearly so numerous as at the Palace, which was easily accounted for by the classification. Mr. John Filkin took the cup with a Black Red cock, and the other three first prizes were awarded to Mr. J. R. Fletcher.

In the variety Bantams the Countess of Dartmouth headed the list with a beautiful pair of Japanese.

Ducks, Geese, and Turkeys were all numerously represented. The cup for Aylesburys or Rouens went to a fine pen of the latter, shown by Mr. P. Unsworth; that for Pekins to Mr. Henry Allen with a very large pair of the true type. These birds seem rather to be driving the Aylesburys out of market, which is a pity. There is plenty of room for both, and it is an undoubted fact that the Aylesbury are much superior in table qualities to the Pekins, the great size of which is more apparent than real.

The cup for Fancy Ducks was awarded to Mr. Robertson Gladstone with a beautiful pen of Mandarins. The extended classification here did not seem to create as good a competition as one would have wished, there being only three pens in the classes for Mandarins, Carolinas, and Call Ducks respectively, while the Any other variety class had but five entries. It seems a pity that fanciers should not avail themselves of the opportunity afforded by the liberality of the Birmingham Committee in giving classes for these beautiful birds.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.: Long. 0° 8' 0" W.: Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881.		Barometer at 23° and Sea and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
November.			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sun.	20	3°·025	52·2	50·8	S.W.	46·5	57·8	42·9	79·7	34·7		
Mon.	21	29·529	52·3	48·9	S.W.	47·2	58·7	49·3	80·2	45·0		
Tues.	22	29·738	54·4	48·2	W.	48·0	54·8	48·5	67·1	42·0		
Wed.	23	29·817	50·6	49·0	S.W.	47·6	54·2	43·5	77·7	36·4		
Thurs.	24	30·061	50·3	48·0	S.	46·8	53·3	41·4	65·6	33·7		
Friday	25	29·732	53·2	52·3	S.	47·6	53·7	49·7	53·3	47·3		
Satur.	26	29·639	42·0	39·7	S.W.	47·7	53·8	40·7	70·7	35·4		
		29·795	50·7	48·1		47·3	55·2	45·1	70·6	39·2		
										1·601		

REMARKS.

20th.—Fine dry day, with sunshine; slight rain at 9.30 P.M.
 21st.—Stormy morning, high wind and rain, afterwards fine and bright; rain in evening.
 22nd.—Fine, bright, and mild.
 23rd.—Damp in early morning, afterwards bright and fine; sudden gust of wind and sharp shower at 4.30 and 6.45 P.M.: starlight night.
 24th.—Overcast and dull; high gusty wind, rain 10.50 P.M.
 25th.—Rain and gusty wind during night and early morning, calm later, but dull and rainy throughout.
 26th.—Very fine, bright, sunny morning; slight rain from 2 P.M., and very heavy gale in evening.
 A wet, warm, and windy week.—G. J. SYMONS.



8th	TH	Alexandra Palace Chrysanthemum Show.
9th	F	
10th	S	3RD SUNDAY IN ADVENT.
11th	SUN	
12th	M	Royal Horticultural Society--Fruit and Floral Committees at [11 A.M.]
13th	TU	
14th	W	

SEASONABLE NOTES ON THE KITCHEN GARDEN.

THE general aspect of the vegetable garden is very different now from what it was in summer, when fine rows of Peas and Kidney Beans ornamented many of the quarters and supplied choice and valuable dishes for the kitchen ; but although the season for such is past, there should still be no scarcity of good and useful vegetables. It is not so much great space as good management that secures this, and when every foot of ground is constantly kept filled with what is most wanted it is surprising what a quantity may be had from a moderate-sized garden in twelve months. To do this, however, little will be accomplished by haphazard work. Sometimes crops may happen to come in right, but as a rule they will not ; and an over-abundant surplus of produce at one time and little or nothing at another will be the result. A system of cropping must be strictly followed. This is the best way to make kitchen-garden work easy and a constant supply of vegetables a certainty. The weather may bring some crops in before they were expected, or it may retard others ; but there is generally something coming in, and there are many ways of overcoming such difficulties, well known to all who give the kitchen garden due attention.

So far this autumn has been most favourable for vegetables. The practice must be bad indeed where there is a scarcity now. Veitch's Autumn Giant Cauliflower is heading as well as it did in August and September, and Veitch's Protecting Broccoli promises to be useful for a long time to come. Other Broccolis are very forward, and will come better in to time than they have done for some winters past if they do not receive a check ; and although there is no appearance of this now, it may come soon, and for this all should be prepared. It is the tender centre of the Broccoli which requires to be most protected, and when they are heeled over on their sides the large outside leaves cover and protect the hearts. When Broccolis are lifted and laid on their sides many of them often receive a check, and the heads often come small in consequence ; but their full size is not seriously interfered with if they are heeled over where they grow. This is done by taking a small spadeful of the soil from one side of the root and pressing the plant over on this side. Some of the roots may be broken in doing this, but many of them will not, and these will enable the heads to attain their full size. All the plants should be laid in one direction, and those with heads should have the leaves tied over the top if frost is expected. Taking them up and placing them in sheds should be the last plan, as they often shrivel there, and then flavour is lost. After this time large

heads should not be desired ; small heads are more easily protected, and most valued in the kitchen and dining-room.

Our earliest-sown Brussels Sprouts have succeeded remarkably ; but those sown very late, which we thought might come in late in spring, seem slow in swelling, and probably they may not be very satisfactory, so that I would advise all who wish to have fine sprouts now and for the next four months to sow early. February and March are, we find, the best months. Many of the large leaves on the stems are now withering, and they should be removed, as they are liable to make the sprouts decay. To avoid this we have taken all the side leaves from our plants, and the buttons and the little Cabbage-like growth at the top are all that remain. We always find this answers well, but the very latest or half-grown plants are not touched until spring. The new varieties of the vegetable which are being introduced do certainly produce much larger sprouts than the old varieties, but their size is their only recommendation, as they are not so neat on the table as the small marble-like knobs that were solely grown at one time. In flavour, too, the larger are not so good as the others. Their colour is mostly white, not green, and the large are much more tender than the small. With us the new varieties have produced very large sprouts at the bottom, and they taper to the top, but the old Dalkeith variety has its stem covered with sprouts all of similar size, not crowded together, and we know from experience that this sort remains uninjured through all changes and extremities of weather.

Winter Spinach, always so useful and easily grown, is making more growth now than we have seen it for some years, and care must be taken that it does not become crowded. The large outside leaves should be removed before they become yellow, and an open space must always be seen between the rows.

Some of our most promising autumn-sown Cabbage were much injured by the great storm on October 14th, but after that we planted more, and the open weather has been so favourable for them that they are quite as early as we desire to have them for cutting in April. Taken all the year round I know of no more useful green vegetable than Cabbage, and they are well worth that attention required to produce a constant supply. The plants we placed out last autumn and cut from in spring are still in the ground. The small heads we have had from them have been very numerous, and there are plenty of the stems with from six to a dozen heads now. They will all be left in the ground until Potato-planting time in the spring. Another favourite Cabbage crop is that sown in July, as the plants are now hearting as fine as we ever saw them in April or May, and if the weather remains mild young Cabbage of the finest possible quality will be cut at Christmas and the new year. Coleworts are often sown to come in at this time, but we do not consider them so good in flavour as the Cabbage.

The extra rainfall we have lately had has not benefited the Parsnips. The crowns are decaying, and may continue to do so if they are not taken out of the ground. This is the best plan to adopt with part of the crop, and if they are stored in ashes or sand most of them will remain good. Savoy is, as usual, heading well, the hardiest being Green Globe, and the largest Drumhead, which is rather too coarse for the dining-room. Nearly all our winter Greens are planted between Potato rows, and at the present time there is hardly a square yard of unoccupied soil to be seen in five acres of ground. If the weather remains mild we shall have too many Greens, but

if it comes severe many may be destroyed, and still there will be enough.

At one time we were only anxious to have the ground cleared and turned up in autumn to be benefited by the frost in winter; but although this no doubt does much good to heavy soil, a kitchen garden properly worked soon becomes friable enough, and does not need to be turned up to the frost continually.

As to frost killing grubs and vermin, I think this must be a mistake, as all have been more plentiful this last year or three seasons than we ever saw them before; and this is not in gardens alone, but in fields as well, where farmers have been troubled much by wireworm, Turnip fly, &c.

As ground becomes vacant now it may be turned up roughly, but no crop should be destroyed simply to make room for digging. Lime should be dug in now and at any time throughout the winter, but not just before cropping. Gas lime is an excellent insecticide if it is dug into the ground some months before the crop is put in. Carrot ground is kept thoroughly clean by it, and Onion grubs or flies are seldom troublesome where it has been used. One small spadeful to each two square yards is sufficient. Except for Potatoes, Carrots, Parsnips, and similar roots, manure is never dug into the soil until the crop is about to be planted. To dig the manure in the soil now for Onions, which will not be sown until March, is to our mind wasting the best part of it; but if it is only forked into the surface of the soil a day or two before the seed is sown the crop will have the full benefit of it at the time they want it most. The same remark applies to many green crops.

Any seeds saved this season should be examined frequently, as some which may not be thoroughly dry or matured may cause the others to decay. Many early Potatoes are sprouting fast in the coolest place we can find for them, but they will not be allowed to grow very far and waste their energies before they are turned over and every growth rubbed off. This is the only way to keep Potatoes in good condition.—A KITCHEN GARDENER.

PLANTS FOR INDOOR DECORATION.

As it has become a common practice in both large and small establishments to decorate the house with exotic plants, and gardeners are often puzzled to keep up a supply which shall be creditable to themselves and appreciated by their employers, it would be advantageous if we could induce some of those who have had large practice in such work to give us the result of their experience; for it is of the greatest importance, especially where the space is limited, that we should know what is best to grow for the purpose.

As decorative plants I think the *Dracænas* surpass any others. Their forms and colours are so varied, some having broad upright leaves of stout texture while others are light and graceful, and varying in colour from the most delicate green and white to the deepest crimson and almost black. I will take them first, and enumerate, so far as my experience goes, those varieties that best endure the dry atmosphere of a heated gas-lit room. *D. terminalis* has always been a great favourite with me; for although not quite so graceful in habit as *D. Cooperi*, it is quite as bright in colour, and where the latter will stand one night the former will stand a dozen. *D. Guilfoylei*, like the former, is also fine for rooms, and having light green and white striped foliage it is a good companion for it. During last winter's frost I had a specimen in a cold passage opposite a window; it was frozen until the soil was hard. Of course I thought the plant was killed, but it is still alive and thriving, which proves it to be quite hardy. The old *D. ferrea* is also very useful and quite distinct, being almost black. Of the dark green-leaved forms *D. nigra* is most useful. *D. grandis* and *D. Baptisti* soon become spotted and lose their lower leaves, so I cannot recommend them. The same may be said of *D. Hendersonii* and *D. amabilis*. The old *D. gracilis* stands well, but *D. gracilis marginata*, although such a handsome table plant, will not endure gas. I had a plant of it which lost thirteen leaves in two nights. *Dracæna australis* and its varieties are good. *D. regina* does not stand well, and as it is reported to be the parent of so many of the new varieties it remains to be seen how they will behave. I have also found the following to be useful plants for indoor decoration:—*Curculigo recurvata* should be largely grown; it stands well, and is one of the best of table plants. *Pandanus Veitchii* is another of which we cannot have too many specimens. Young plants of *Ananassa sativa variegata* are handsome for the table. *Panicum plicatum* and *P. plicatum*

variegatum raised from seed and grown quickly are ornamental and useful.

Crotons are also good, but, like *Dracænas*, some are better than others. We use the old *C. angustifolius* and *C. variegatus* in quantity. The one which I have found to stand best of all is *C. irregularis*. It will remain in good condition twice as long as any other Croton that I have tried. There are other good and handsome plants, such as the choice *Aralias* and *Palms*, but as they cannot be propagated in such numbers as the foregoing, they are used more sparingly.

Let me advise those who have much indoor decoration to do, to employ *Selaginella* to cover the surface of the soil in the pots, and to hide the rim of the pot. It is a notable fact that at the late International Exhibition at Manchester, of the twenty collections of table plants staged for competition, the first and second only had the soil covered with *Selaginella*. I should be glad if some abler writer than myself would take up this subject, and I am sure the readers of the Journal would be greatly profited by it.—WM. PLANT.

FRUIT NOTES.

BEFORE the interesting scraps about fruit close, I should like to say a word respecting an Apple that is much grown in this neighbourhood (Ashrood Bank, Worcestershire), called the "Woodsill." No such name appears in any catalogue or fruit list that I have seen, therefore presume it must be a "local" sort. No Apple, it appears, is so much grown except Blenheim Pippin as a standard for orchards in this district. The trees are not so liable to canker as most sorts. Ribston Pippin is, perhaps, the worst; many trees here were so disappointing that they were headed-down and grafted with Woodsills, which are now bearing good crops annually. The habit is good, forming abundance of fruit-bearing spurs; fruit good for culinary or dessert, with plenty of colour; in season from September to December; is highly scented. Their presence can always be detected in a room.

I have also a favourite Pear which cannot be found in any list, known as "Green Beurré." This is a sure bearer, of good habit, useful for dessert or baking, very juicy and sweet, and with a little management may be had in use from October to April. Many kinds of Pears have been tried here and found wanting as croppers, and have had to succumb to the grafting-knife to make room for Green Beurré. If any reader can oblige with the correct names (if they are known), with any remarks, I shall feel obliged.

The uncertainty of the fruit crop in this district was very singular this season. In some cases, and I am pleased to say mine for one, there has not been so good a crop for many years, while only short distances away it has been almost a failure. In one case a person who rents about twenty acres of orcharding, and who expects to grow several hundreds of pots, told me he had not a pot of fruit in all his orchards. In another case a neighbour who has not probably half as much orcharding, put up, it was estimated, about 150 pots alone of Blenheim Pippin Apples, exclusive of windfalls, which he sold for 7s. 6d. per pot; that he considers half a crop, having previously stored three hundred pots in one season, or about 450 bushels. He plants no other sorts now, and the fruit, I hear, is worth 12s. per pot (72 lbs. nett), and cider at the same place is being sold at 1s. per gallon. I mention this in comparison with the statement of "A SURREY PHYSICIAN," on page 466.

I am pleased to see the subject of planting more fruit trees in fields advocated, both in hedgerows and also in the open ground. I have often wondered that land-proprietors do not plant more extensively, which would in a few years certainly enhance the value of their properties; and, apart from the value of the fruit, what looks prettier than an Apple orchard in full bloom, with the various tints of the different sorts? One such sight I have in my mind when visiting Canada a few years ago. It was in the beginning of June, when everything looked lovely from the top of the Montreal mountain; and looking down almost any way, except into the centre of the city, or into the broad St. Lawrence, Apple bloom met the eye, intermingled with the various delicate tints of green. No fancy carpet bedding ever pleased me like the straight lines of Apple bloom in the well-stocked orchards below, some of the fruit from which was probably destined to compete in our own country with local growers, after being brought thousands of miles; whereas in some favoured localities Apple trees thrive so well that they ought to be planted by the thousand at little outlay, and Nature would certainly do her part to provide a crop to compete with American fruit under such disadvantages as freight and various other expenses.

A cheap and simple protection to young trees from cattle I ventured to send, and which appeared in the Journal some two

years ago, consisting of a rough Briar or two and bound round top and bottom with wire. I have just renewed mine which had been on three years, and I found the trees which had previously been mutilated and bruised fast closing over.

Bullfinches should now be caught before they attack the fruit buds. I may be excused from repeating this advice, which I advocated last autumn, and I do not remember to have seen any grumbling since. I hope others were as successful as myself, as I caught about thirty, and my buds were almost untouched. One bullfinch only appeared to have been left, which, over a district, could be tolerated. The last I heard of any of the birds was that a pair were transported to Canada, and were there considered worth about 5 dols., or about £1 sterling. Would that they had many at the price, and that our gardeners could have the proceeds of the sales.—J. HIAM.

[The Apple above referred to is no doubt a local variety, and excellent for culinary purposes. The Pear is, we believe, the Muirfowl's Egg, an old Scotch Pear, hardy and productive as standards.—ED.]

THE UTILISATION OF SEWAGE.

"YOUR letters in the *Journal of Horticulture* have interested me very much. You say the application of house sewage is still an unsolved problem. Has it not been partly solved by the earth closet system? Any good work on agricultural science would make some reference to 'double silicates,'—i.e., to clay, and its power of combining with other fertilising matters. In the small town from whence I write nearly every inhabitant adopts the earth closet system, but it is evidently not understood by many who use it, and it is consequently not so effective as it might be. The idea with many seems to be that any earth or ashes will do to use in these closets, whereas nothing has the proper chemical effect except a clay of some kind. Of this a small quantity, dried and pulverised, is most effective in forming the desired chemical combination, whereas any other material must be used in much greater quantity, and then it is only a 'smothering' and not a deodorising process. I believe kainite has been made practically useful in a similar manner—i.e., sprinkling it on floors of stables, dung-heaps, &c. Please make what use you like of this, as I should like to see some remarks from you on the subject."

The above communication we received through the Editor from "a teacher of a class in the principles of agriculture in connection with the Science and Art Department." The writer wishes to see some remarks by us on the subject, but, as a matter of fact, we have very little practical acquaintance with any earth closet system. However, there cannot be any doubt but that the problem of how to utilise the present wasted sewage must be solved, if solved at all, on the lines indicated in the above letter. And such a system carried out properly ought to pay. For manures practically the same we annually spend enormous sums; for water to carry away the sewage an enormous amount of wealth has been thrown away, and worse, for not only is water and sewage alike lost, but rivers are polluted, and volumes of deadly gases generated, ready, wherever admitted, to produce serious diseases.

There is no reason why a single sixpence should be sent out of the country for manures; for that which is produced at home, if utilised, would be more than sufficient to double our present crop and maintain our fields, even the poorest of them, in a state of fertility. Within twenty miles of the second city of the empire farmers reap crops hardly half of what they ought, just for want of what makes one of the most beautiful rivers in the country a sink of evil smells. After the drain on our resources for foreign manures and foreign grain tells a little harder on our commerce and our agriculture, possibly we may reform; at present there is an idea abroad that we can well afford to waste as we now do.

At the close of the paper in which appears the sentence referred to in the above letter, we mentioned that trees stunted through poverty were benefited in a remarkable manner by an application of sewage. It may be of use to some of your readers to give a few more remarks in regard to that particular way of applying it. We intended saying something on its use in the vegetable garden by-and-by, but having said this much it may be not out of place to say what value we put upon it in the present place.

Our soil here is peculiar. It is naturally not over 4 inches deep, and under that there is a rusty impenetrable subsoil. Being so thin, it is, of course, very poor. Trees planted on such soil, where the grass is allowed to grow, make no progress, for the grass takes possession at once of the whole available food supply. It took us two years to find this out after we had planted belts for shelter round this place. After finding it out, how to remedy it took us another year to solve. Near us there are large foun-

dries, and in these there are closets conducted on the earth principle. For earth, waste sand from the moulding boxes is used in no stinted quantities. This we found we could have for the carting. A score or so of cartloads were spread over a portion of the plantations and would have dressed the whole. This was in winter. But our employer promptly stopped the proceedings on the score that a plague would be raised. In spring the grass soon covered the dressing, and the trees so treated grew away at once. Next year they made a surprising growth, and as neither smell nor plague followed we had orders to dress the whole of the ground. The results are eminently satisfactory, and for those who may have trees starving, which are wished to grow up for shelter quickly, we here mention this.

We recently saw a gardener lifting an avenue of Limes which had made no progress, though apparently on fairly good soil. The ground was being trenched deeply, and very liberally mixed with ordinary town manure—i.e., street sweepings. This by the boat-load—a canal passes near—was very cheap, and the trees treated to it, hitherto stunted and starving, are now beautiful specimens, growing rapidly and rooting securely. Those whose trees are not growing as they would like, and who are near enough towns to secure such manure as we have named at reasonable rates, would do well to try either or both the above modes of producing such growth as will gladden their eyes; and those who are planting, or are about to plant, trees in small or new places, where a rapid growth is sure to be a desideratum, had better take the hint. Stable-yard manure is much too expensive in many places for such a purpose, and in many districts, indeed, cannot be had; but there are other natural manures besides that, and sometimes one is none the worse for being reminded of the fact.

For the vegetable ground it is also valuable, especially on poor thin soils, or when other manure is scarce. All the Cabbage tribe thrive on it exceedingly, and for Rhubarb nothing comes near it. On ground intended for Cabbages, Brussels Sprouts, Cauliflowers, &c., it is best spread out on the surface and allowed to be bleached in by the rain. It is thus better diffused through the soil than when dug-in at once, and if the soil has been previously dug all that is needed in spring is a light fork-over. The roots at once reach their food, and the result is excellent.—SINGLE-HANDED.

AREAS OF GLASS STRUCTURES.

WITH reference to your correspondent's comments upon the remarks in my lecture at the Crystal Palace, as reported on page 473 of the *Journal of Horticulture*, had the whole of the remarks

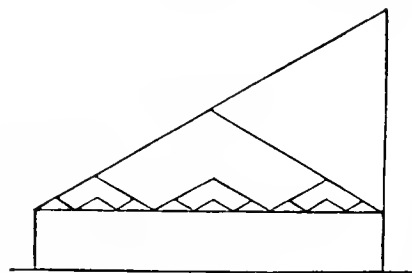


Fig. 81.

been published, which was naturally impossible, it would have been found that my statement that "with the same width and the same pitch a span and a lean-to roof contain the same area" referred most clearly to superficial measurement only, as illustrated by the annexed figure, in which a lean-to, a span, a three-span, and a ridge-and-furrow house of the same length, width, and pitch of roof, each contains precisely the same superficial roof area. See also pages 49 and 50 of my work "Horticultural Buildings." Cubical contents, the measurements relating thereto, and their uses were duly made prominent in another part of the lectures.—F. A. FAWKES, Lecturer at the Crystal Palace School of Gardening.

DENDROBIUM PIERARDII.

THE above-named plant does not produce flowers at all equal to many other Orchids, not even equal to old *D. nobile*, but there is hardly one more easily grown or more profusely floriferous. More than that, it may be grown in any plant stove and occupies no stage room, for if it is hung near the glass in a basket will produce a fine display of pretty flowers. These are its recommendations, and as it has never been recommended, so far as we are aware, in these pages, we venture to do so.

An engineer on board a steamer secured our plants when in Calcutta, and they arrived along with a barrelful of others mostly useless. Being rather crowded we put the plants two, each with three or four breaks—into mahogany baskets (mahogany does not decay readily, and can be had anywhere), 5 inches square and deep, in a mixture of half eharcoal, half sphagnum. In due time the plants commenced growing, and we kept the baskets damp, and were rewarded with pseudo-bulbs quite as stout and

quite as long as the native-grown ones. When the growth was made up we kept the plants rather dry. This treatment caused the pseudo-bulbs to become firm. By February many flower buds were showing. We then began supplying water again. All that was done that year was to remove any old moss and supply some fresh. This has been repeated every spring, and they still occupy their original baskets. They have increased their shoots every year, and the pseudo-bulbs, at first a foot in length, are, many of them, about three, and nearly as stout as those of *D. nobile*. Last spring we had over two hundred flowers, each fully 2 inches in diameter on one plant. Occasionally we dip the baskets in a pail of very weak liquid manure, otherwise they have had only clean tepid water. The treatment in regard to moisture has been the same as the first year.—A. H.

THEORIES IN VINE CULTURE.

IN my first paper on this subject I unfortunately omitted to give the distances at which I should plant Vines intended for a permanency, and this to a certain extent misled both opponents and supporters of the system I advocate. On page 452 I mentioned preferring to plant supernumeraries in the body of the house and against the back walls, supporting the former with stakes and the latter with wires, good crops resulting in both instances. In the last vinery I planted the permanent Vines were disposed under each rafter, this admitting of a lateral spread of a trifle over 4 feet. Now, I ask, is not this if well filled, but not crowded, with fine foliage sufficient to meet all the requirements of the young Vines?

In support of his arguments in favour of unrestricted growth Mr. Bardney quotes a description of a remarkable house of Grapes grown in his neighbourhood, and I may point out several good houses of Muscats and other Grapes grown on a different principle. It appears, however, those Vines, the laterals of which are allowed "almost wild extension," are fourteen years of age, and, what is noteworthy, the growth is encouraged at the base more extensively than at the termination of the rods. This is very different to the practice of encouraging wild growth in young Vines.

Mr. W. Thomson is undoubtedly a great authority on Grape culture, but he is not infallible. Like Mr. Bardney, I wonder he has never found out the unsoundness of the system of growing young Vines unrestricted, thereby obtaining a "thicket of growth," only to be cut down to "within a foot of the sashes." I should much like to know if Mr. Thomson in his present circumstances would resist fruiting such rods as he obtained. If he had done this successfully his opinion would have carried more weight, but as it is I fail to appreciate the relevancy of the quotation. Neither do the weights given of crops obtained by Mr. Bardney support his theory.—W. IGGULDEN.

HAVING read the vigorous replies from two of your most able contributors to Mr. Iggulden's article on this subject on page 420, I have looked over the said article a second time to see what there can be in it to deserve such severe condemnation from such very practical men; and I will at once say, that although there are some of the minor theoretical conclusions and deductions which I can scarcely follow to their full extent, yet I consider the practice therein recommended for young Vines as sound as any that was ever penned, and I had no idea till I read the articles of Mr. Bardney and "SINGLE-HANDED" but that such practice was more general than it appears to be. I have no doubt it will look a little inconsistent at first that one who, perhaps, may be excused for fancying he has done something to popularise what is called the extension system of Vine culture, should take up his pen in favour of what your correspondents are pleased to call the restrictive system, but I hope the inconsistency on my part will disappear before I have finished. Of course the term "extension" is only comparative as contrasted with the severely restricted system. No system of indoor Vine culture can be unrestricted if the Vines are grown liberally; at any rate, I should be loth to state the size of house which an unrestricted Vine would occupy in twenty years under the modern generous system of culture.

For a Vine to cover 700 superficial feet in half a dozen years would probably be considered far enough on the road to extension to please most of your readers, but that has been proved to be a very easy matter, even when a considerable amount of restriction was practised. But Vines no less than children should be "trained up in the way they should go." If they are to be grown like Brambles, let them begin to grow like Brambles in the first place, and I have no doubt they will look very pretty; but as "wild gardening," whatever that curious term may mean, is not our object

in this case, I advise a moderate amount of restriction to be begun consistently and carried out consistently so far as circumstances will allow. For the severely restricted system I have nothing to say, as that will soon be a thing of the past.

Mr. Iggulden asks, Why should we allow young Vines to grow wildly for the first season or two merely to be cut back? I also say, Why, indeed? and your two able contributors have failed to answer the question. There is a certain cheap commodity mis-called "science" which used to frighten me tremendously, in the same way as little children are sometimes frightened by unskilful and naughty nursemaids when they are told "the bogies will have them." This bogie tale, no doubt, often does a considerable amount of harm to weak little minds, and should not be resorted to. Happily Mr. Iggulden and myself, if not yet adults, are getting out of our horticultural babyhood; and although I do not wish to be presumptuous, I may say that this bogie has often been proved to be only a paper one, and is not so terrible to me now as it once was. For true science I have the greatest admiration, but not that sort which is gained by reading a few theoretical books and attending an odd lecture, though these are of incalculable benefit when supplemented by knowledge gained from practice and personal observation.

This "all round" sort of knowledge intelligently applied is my idea of science, and without at least a smattering of it a man's ideas are not worth much. Mere theoretical science is very accommodating when successful practice or even failures have to be explained, but it is often sadly behind when we plodding practical men want a difficulty solved, and as often as not we have to grope our way as best we can, and then when success comes the theorist knows all about it and could have told us before.

We are told by your generally very able correspondent, "SINGLE-HANDED," that science is opposed to the practice recommended by Mr. Iggulden. I beg emphatically to say that science is nothing at all of the sort, and that your correspondent is using the term science, unconsciously, no doubt, for what he supposes to be the right practice because many people follow it. Science does not say you will build up a healthy-constituted man by fattening the child as fast as possible, while it can have comparatively little demand on its muscular or nervous systems; neither does it say that growing young Vines Bramble-fashion, however fast it may manufacture roots, is the system best calculated to promote longevity and fertility.

There is a wide-spread notion that a certain area of foliage means a corresponding amount of storage for future use, but this is sometimes misleading. Foliage which is thin, and which cannot be acted on by the light, is not only useless as regards future storage, but I take it to be positively injurious, inasmuch as it assists to manufacture and circulate crude material which it cannot assist in elaborating. I have no doubt it assists in forming roots—not, however, the kind of roots you would be likely to mistake for those of a Box bush, but those gross roots as large as a small quill, which ramble for many a yard without a fibre, and which generally decay within twelve months of their birth; or if they do not decay outright, the central part only lives, and it has to form a new epidermis suitable to its diminished corpulency. Where such stragglers are known to exist a common garden spade is a very suitable instrument to apply to them, but it must be done some time before the fall of the leaf. It would surprise a good many people to see what amount of root-pruning a Vine will bear if it is operated on at the right time. The practice, however, is not necessary for the purpose of inducing fertility. As with other fruits, light, air, and summer-pinching, with the requisite beat, will always bring that about, but it is well for many reasons to know where the roots are.

Not only would I restrict the growth during the first season as recommended by Mr. Iggulden, but I would go further and treat the Vines more in the style that good pot Vines are grown, thus forming a good foundation at the bottom; and if your correspondents will try this plan and carry it out thoroughly they will find there is no necessity to cut the Vines down as low as is usually done, and that a bunch may be carried with advantage both to the Vine and the proprietor when the former is only twelve months old from the bud. Vines so treated will break regularly up the stem for several feet, and these breaks, encouraged to a moderate extent all the way from the surface of the soil, will do more to enlarge the stems and manufacture suitable roots than would half an acre of thicket-like growth at the top.

I do not consider your correspondents have treated Mr. Iggulden fairly when they make him an advocate for the severely restrictive system. If I understand him he merely recommends some restriction during the early stages of the life of a Vine, and I think it quite possible that in the more advanced stages your

correspondents would find him giving more liberty to the growth than they would consider safe. It appears to me, then, that the inconsistency would be on their side. They begin with the rambling fashion, and then come back to what at any rate I should call rather severe restriction. We begin with comparative restriction, and continue that system till stopped by circumstances over which we have no control, such as the non-elasticity of the sides of the house or the garden.—WM. TAYLOR.

[This article was written before the Journal of last week appeared.—ED.]

I HAVE no difficulty in replying to Mr. Bardney's questions on page 500. As to cutting down Vines as recommended by your correspondent, who appears to grow canes 30 or 40 feet long in

summer and removes all but perhaps 3 feet in winter, thus removing all the best buds, I am asked if I do not do the "very same" in pruning restricted Vines? No, I do very differently. My canes are, say, 9 or 10 feet long, hard, strong, and have produced foliage of great texture, every leaf of which has been a working leaf, as is apparent by the prominent eyes, almost down to the base of the rafters. The best buds are not at the top of the Vines, for those formed there are not hard and dormant but have swelled more or less. They only begin to be really sound and satisfactory at from 18 inches to 2 feet from the top; but to make sure I only retain thoroughly sound wood—I remove, say, 3 or 4 feet from the canes and leave 5 or 6 feet according to circumstances. I have plenty of the finest possible buds left, but he has not by his exhausting system. I remove, say, 30 or 40 per cent.



Fig. 82.—VIOLET PRINCESS OF PRUSSIA.

from my canes; he removes more than 90 per cent. from his. He takes above ten times more nutriment out of his border than I do, while I store twice as much nutrient matter in the canes as he does. My practice is therefore very different from his, and I think more economical. Now to results. Vines so treated in their early stages produced when they were fifteen years old Grapes that won prizes both at the Royal Horticultural and Royal Botanical Societies' shows, and the same Vines, now twenty-five years old, yield Grapes of the highest order both in size of berry and quality; but, owing to the wants of a large young family, twice the number of bunches have to be grown than were formerly needed, and these are of course smaller in proportion: but the Vines themselves are in sound health.

I feel convinced I can obtain more and better Grapes by the plan proposed by Mr. Iggulden, with the aid of supernumeraries, than I possibly could do if I crowded the roof with foliage like a "thicket" and then mercilessly burned seven-eighths of the canes for the sake of a peek of ashes. I can get ashes cheaper than

that, and Grapes cheaper too, than by the exhaustive system advocated.

When Vines are allowed to grow in wild luxuriance all through the season they produce yards of growth and hundreds of so-called leaves, that are certainly not feeders of the Vine, but, on the contrary, robbers. This is a point and, I think, a fact, that "SINGLE-HANDED" appeared to overlook in his scientific reply to Mr. Iggulden a few weeks ago.—AN OLD GROWER.

VIOLET PRINCESS OF PRUSSIA.

IN Mr. G. Abbey's notes on Violets, published a few weeks since, I saw no special mention of Mr. Lee's fine new Violet Princess of Prussia. Possibly he may not have given it a fair trial. I have had it in cultivation now for about twelve months, and have quite satisfied myself that it is the finest single Violet in my collection, much superior to Victoria Regina and odoratissima. It has been blooming freely since September, and the

plants are still showing signs of keeping up the supply of blossoms for months to come. And such blossoms! as large again as Victoria Regina, beautifully shaped, deliciously fragrant, a fine rich purple colour, and borne on stalks long enough and stiff enough for the largest bouquet. The foliage is very fine and distinct, and the whole habit of the plant all that can be desired. I enclose some blooms for your inspection.—R. W. BEACHEY.

[We never saw such fine Violets as those Mr. Beachey sent, and which we have had engraved. They appear to possess all the good properties of the flower—size, form, substance, colour, and perfume—in a remarkable manner.—ED.]

PEARS FOR WALLS.

I DID not endeavour to reply to the article of "A. H. H." on page 468 sooner because I found, with regret, that he was under medical care and absent from home, and I was unwilling to impose on him further labour under those circumstances. I hope he is now well and in harness again.

I must now take my readers back to page 327, October 13th, and ask if there was the slightest suggestion of personality in that article, or anything to call forth the smart reply on page 396, November 3rd. This letter, I submit, invited, even demanded, such an answer as I gave on page 428, November 10th, and which your correspondent duly honoured on the page first quoted (468, November 24th.) These dates are collated for convenience of reference to those who are interested in the subject under discussion.

It seems that "A. H. H." disclaims the quality of boldness that I attributed to him in writing as he did after reading the remarks of Mr. Warner (355) and the practice of Mr. Taylor (388) on the subject of Pears on Pear stocks, inasmuch as he had not read those articles when he penned his communication. This is a perfectly satisfactory explanation; but when I asked him to prove that borders 30 feet wide, concreted, &c., were absolutely necessary in ninety-nine cases out of a hundred for such trees as I advocated, his reply is scarcely worthy of him, and if he had written at first what he has written now on this part of the subject there would have been little or any difference between us. Then when he stated that fruit could be grown with a hundredth part of the labour that is necessary under the old system, I naturally challenged the accuracy of the statement; and now, fortified by experience, I do not hesitate saying that what he advanced is absolutely unsustainable, and he has said quite as much as I expected he would say on that point.

It is no fault of "A. H. H." that his experience is less than mine on hardy fruit culture, but at the same time he might credit others older than himself with having striven with the same zeal that he has done to acquire knowledge on this branch of their calling, and he will find it prudent to refrain from applying epithets to those who endeavour to impart information, because he may happen to differ from them in opinion. Although your correspondent cannot adduce results of his own practice, I should not like to suggest, much less assert, that he is no gardener; on the contrary, his letter affords evidence of his capacity in that respect, although, in my opinion, he has yet much to learn on the most economical method of growing hardy fruit.

Several years ago I entertained somewhat similar opinions to those "A. H. H." entertains now. I was young, earnest, and enthusiastic then, and dreamt about the revolution of fruit culture, and of the bountiful harvests that would follow when the improved systems became established. My dreams have not been fulfilled. Millions of fruit trees have been planted at an enormous cost during the last thirty years, but we are more than ever indebted to foreign countries for an adequate supply of useful fruit. This is a fact, and for such "improvements" as have led to it I have no affection. I will go further, and boldly state that if the fashion is continued of planting collections of Apples and Pears—one tree of a sort—on Quince and Paradise stocks, and crippling them by pinching and root-pruning, we shall never become, what we might become, a fruit-producing nation in the most important respect of all—namely, producing an abundant supply of wholesome food for thirty-five millions of people.

This bears directly on the subject on which I first ventured to write. I denounced, and I denounce now, the practice of apeing the French in endeavouring to cover English garden walls with Pears; and I advocated then, what I advocate now, freely grown well-trained trees on Pear stocks, from which the fruit is estimated by pecks and bushels instead of by pounds and dozens. I have no objection whatever to a wall of cordon trees provided a number of each of the best varieties are planted, as these would be equivalent to one good tree grown on the English system in affording a serviceable supply of fruit; but when this is the object

it will never be attained if a hundred trees represent as many varieties; and, in my opinion, this practice is only advisable for experimental purposes.

But cannot cordon trees be grown on Pear stocks? A pretty firmly established opinion exists that they must be on the Quince. This is a fallacy. On many soils they are better, far better, on Pears, will cover the wall quicker, and bear as well as trees can bear if they are properly managed. In many gardens Pears will not succeed on the Quince. I have experienced precisely the same results as Mr. Warner narrated on the page above quoted. I planted two trees of each variety of a selection of Pears—one on the Pear, the other on the Quince—fifteen years ago, and I do not hesitate saying, in fact, I am sure I might with truth say more, that the trees on Pears have afforded five times the quantity of fruit that those on the Quince have afforded, while many of the latter are either dead or dying in spite of every endeavour that has been made to keep them in health. Far more labour has been spent on the trees on the Quince than on those on Pears, yet these latter are now fine fruitful specimens, and will continue so for fifteen years longer, even for thirty, if they are well managed. "But what of the fruit?" "A. H. H." may ask. Well some of it was staged at one of the largest shows in England this year, and had a respectable position there, and it in other respects gives complete satisfaction to a family who are not satisfied with inferior produce.

I notice in the excellent letter of "WILTSHIRE RECTOR" in your last issue that the writer has uprooted Beurré Diel Pear because of its worthlessness. With me that Pear was utterly worthless on the Quince, but a tree on the Pear not 10 yards distant produces splendid fruit both in size and quality, fruit which is worthy of a place on any table or in any exhibition. This tree, with others, was planted in an old border, a one-horse cartload of fresh soil being used at the time, and the border has been regularly cropped with vegetables and Strawberries. It has been root-pruned once in a manner that may possibly shock "A. H. H." The soil was removed from near the stem, and two strong roots that appeared to go straight down into the subsoil were chopped off with a small axe and left. That was all. The whole work was done in a quarter of an hour, and if two men had spent a day in lifting the roots carefully and replanting the tree in fresh soil the results could not have been more satisfactory.

On the question of training trees with branches 30 feet long and as straight as gunrods, I wish to say a word. When writers complain of the time that is spent in training and nailing such trees, they always appear to me to publish a certificate of their inexperience. Much less time is requisite for managing a well-trained tree than one that has been neglected or trained in a haphazard manner. Many winters spent in work of this kind enables me to speak positively on this point. A badly trained tree has nearly always far too many branches, and the majority of these are far too crooked; and if a greater number of crooked branches can be pruned and secured to the wall in less time than a lesser number of straight branches can, all I can say is that those who can accomplish this feat are exceedingly clever, and I would go a long distance to see them at the work.

I do not retract one word I said on page 327, that splendidly trained and well-managed specimens of Pears on walls are a credit to any garden and gardener, and they will afford more fruit with less labour than can be obtained from puny trees on Quince stocks that are pinched and root-pruned to accelerate their cropping and shorten their lives.

I am not now writing so much in reply to "A. H. H." as on the general question of fruit-tree culture and management, and he can reply or not as he prefers. I neither invite nor fear criticism. I did not write my first article on Pears for walls without my book, and it is not emptied yet.

On the question of pruning, I cannot refrain from noticing a remark of "A KITCHEN GARDENER" in your last issue. He says on page 491, "I would never allow the leading branches of young strong-growing trees to remain longer than from 9 inches to a foot annually. This will be the means of producing robust well-spurred branches." My remark on this is, that if he does not prune the roots in the same proportion the "spurs" will not be fruit spurs, and if he does so restrict the roots he arrests the extension of the trees needlessly. I dissent entirely from your correspondent on his teaching as applied to Pears on walls. After almost all sorts of experiments, extending over a number of years, I have arrived at the conclusion that there is far more root-pruning and far more branch-pruning practised than is necessary for Pears on walls, and it is because of this that failures are so common and really fine fruitful trees so few.

One word more. If "A. H. H." should reply to this communi-

cation, may I ask him to answer the following questions which he passed unnoticed in my former letter? If the practice of lifting and root-pruning is so wonderfully profitable, how is it that fruit-farmers who pay £5 an acre for their land do not indulge in it? And on the border question will he say why a Pear tree against a wall should require an expensively made and elaborate border when it will grow freely without in an open field or garden?—JOHN BULL.

PROTECTING ROSES—A WORD OF CAUTION.

ONE advantage of living in our delightfully uncertain climate is that it gives people an opportunity of ventilating all sorts of ideas as the occasion arrives. Thus, a few years ago we had a time of great drought; forthwith out comes a host of letters in the *Times* and other papers on the sinfulness of not storing up our water in wet seasons to provide against the dry ones that may follow. Then came, as we all know to our cost, wet seasons culminating in the woeful year of 1879; and then an equally numerous supply of letters came to light showing how we are to get rid of our superfluous water. It was well the former advice had not been taken, or the latter extreme would have been worse still. Something of this kind occurs to me now. We have had two very severe winters; the losses amongst Roses have been enormous; it was found that those best protected succeeded the best, and hence in all directions we hear of persons making their plants snug, as they call it, for the winter; but what if (and in our uncertain climate more unlikely things may happen) a season as exceptionally mild as the last was severe should come upon us: will not this conduce to too early growths pushing and consequent loss by spring frosts? Already persons are complaining that the lower buds of their Roses are starting; and in the latter end of this, perhaps the mildest November recorded, as I understand October was the coldest one, I have cut Tea Roses from the open; and so far from having as yet given protection, I have rather endeavoured to check growth. About a fortnight ago I told my gardener to put the fork under each of the dwarf Roses and just give them a gentle lift. I did this for two reasons: that which I have already mentioned—giving them a slight check, and so leading them to expend their energy in repairing damages underneath instead of pushing out above ground; and also because I believe it is injurious to the Rose to get sunk down too much, as it will inevitably do. We place a heavy mulching on; this of itself presses on the plant, and then it is dug in and a fresh mulching applied until the point of union is in some instances 7 or 8 inches below the surface.

Considerable difference of opinion has been expressed as to mulching, but it is certainly a good preservative from frost. If, however, growers do not like to use it, then some other protecting material should be at hand to be applied as soon as ever the symptoms of severe weather begin to show themselves. Where mulching is used, then again the material may be at hand and quickly applied. Of course where large collections are grown these remarks do not apply.

I cannot but think that we have too much insisted on the tenderness of Tea Roses, as if they needed special protection. My own experience is that they are as hardy as the Hybrid Perpetuals. Some Teas are doubtless tender, but so are some H.P.'s; but I am convinced that there are a number, and those of the best kinds, quite as hardy as the H.P.'s. Flowers such as Madame Lambard, Contessa Riza du Parc, Bouquet d'Or, Homère, Marie Van Houtte, Souvenir de Jean Pernet, Jean Ducher, and others, are quite as able to bear frost as any of the Hybrid Perpetuals; and I find this confirmed by growers as far north as Darlington, and even at Dunkeld in Perthshire. At the former place Mr. Whitwell assures me that he gives Teas no more protection than he does Hybrid Perpetuals; and at the latter, Mr. Gray writes that he wintered four hundred Teas last year out of doors with as great ease as he did his other Roses.

My advice, then, would be, Do not be in a hurry to protect, but have all in readiness; and when the cold weather comes, as come it will, be ready to apply it.—D., Deal.

POTATOES IN OLD GARDEN SOIL.—The remarks at page 443 by "PRACTICAL" show how much more clearly some people can put things than others. I thank him for his hints. Like his, the soil here with ordinary cropping and ordinary manuring will continue producing fine crops of Potatoes indefinitely; but doubtless "PRACTICAL" has known gardens, as I have, that produced great crops of haulm and indifferent crops of tubers, while increased manuring only aggravated the evil. Doubtless he has also seen, as I have, applications of wood ashes alone produce on such soil fine crops of excellent tubers. Ours is a particularly favourable Potato soil, although in many other respects a very inferior one. In fact the soil in itself

yields no inconsiderable amount of potash annually—quite sufficient, in fact, to maintain the land in Potato-yielding condition when cropped on the rotation principle and manured with ordinary manure. Manuring is only one phase of the question.—SINGLE-HANDED.



It is anticipated that the meeting of the FRUIT AND FLORAL COMMITTEES AT SOUTH KENSINGTON on Tuesday next will be a most interesting one. There will be a brisk competition for the prizes offered on this occasion by Messrs. James Carter and Co. for vegetables. Messrs. Carter intend themselves making a large display.

— HER MAJESTY THE QUEEN has been graciously pleased to accept a copy of Mr. Fawkes' new illustrated work of reference on "HORTICULTURAL BUILDINGS" recently published at this office.

— AS showing the MILDNESS OF THE WEATHER, "J. W." states that he has a Rhododendron Nobilcanum in the open border of his garden, near Liverpool, in full bloom. The blossoms began to expand on the 10th of last month.

— FROM Friday the 9th inst. to Tuesday the 13th an EXHIBITION OF CHRYSANTHEMUMS will be held at the ALEXANDRA PALACE—an unusually late date for the neighbourhood of London, but it is an experiment which is expected to produce fairly satisfactory results. About £40 will be offered in prizes, the principal being those for twelve large-flowering plants in pots.

— A CORRESPONDENT, in answer to "J. R.," writes that a report by gardeners who have used KEEL'S BLIGHT-DESTROYER AND VAPOURISER has just been published, and may be had on application to Mr. A. Hawes, Walcot Parade, Bath.

— IN reply to a Scottish correspondent, on page 450, relative to GRAPES AT THE EDINBURGH SHOW, "SINGLE-HANDED" writes that he cannot, for a good reason, supply the information asked for in a public manner, but as he believes our correspondent is an acquaintance of his, he may one day give him the information personally.

— WE are glad to learn that the Right Honourable The Lord Mayor of London will preside at the thirty-ninth anniversary dinner of the GARDENERS' ROYAL BENEVOLENT INSTITUTION, which will be held at the Albion, Aldersgate Street, on Thursday, June 29th, 1882. His Lordship will be supported by the Sheriffs of London and Middlesex and the Court of the Fruiterers' Company. A successful meeting is anticipated.

— THE following are the dates of the ROYAL HORTICULTURAL SOCIETY'S EXHIBITIONS AND THE MEETINGS OF THE FRUIT AND FLORAL COMMITTEES in 1882—January 10th, February 14th, March 14th and 28th, April 11th and 25th, May 9th and 23rd, June 13th and 27th, July 11th and 25th, August 8th and 22nd, September 12th, October 10th, November 14th, December 12th; National Auricula Society's Show, April 25th; Great Summer Show, May 23rd, 24th, and 25th; Pelargonium Society's Show, June 27th; National Rose Society's Exhibition, July 4th; National Carnation and Picotee Society's Show, July 25th; Exhibition of British Bee-keepers' Association, August 3rd to 8th; Artisans' and Cottagers' Show, August 7th. The date of the Evening Fête is not yet fixed.

— THERE is now in one of the houses at the Royal Horticultural Society's Chiswick Garden one of the finest displays of

BEGONIA INSIGNIS we have seen. Some three dozen plants are arranged to form a bank, which is literally a mass of flowers, the light rosy tint being pleasantly contrasted with brilliant Poinsettias, the bright yellow *Linum trigynum*, red and white Primulas. The Begonias are in remarkably fine condition, vigorous, yet compact and bushy specimens, each 2 feet or more in diameter, and bearing hundreds of panicles of flowers. The plants are all in 24-size pots, and have been grown from cuttings struck early in the year.

— AN Irish correspondent takes strong exception to the remarks on page 468, both as applying to the CHAMPION POTATO and those who esteem it in Ireland. There could be no greater mistake, our correspondent asserts, than to imagine this Potato has "a stone in the heart of it," and only those can give it this character who do not know how to cook it. The references to the typical Irishman are described as at least indiscreet at the present time, even "if only written with the intention of raising a laugh." We can assure our correspondent that the writer to whom he alludes would be the last to intentionally cause pain to the most susceptible inhabitant of the sister island, which no one desires more earnestly to see peaceful and prosperous.

— IN the last issue of Mr. Richard Proctor's new and instructive periodical, "Knowledge," a writer gives some interesting particulars concerning the past "MILD NOVEMBER." "It appears that in London the average temperature of the first twenty-five days of the past month has been as much as 7° above the mean of twenty years' observation; and if it is fair to compare the London temperatures with those of Greenwich the past November has been decidedly the warmest experienced during the present century. Relatively warm Novembers were observed in the following years—1806, 1817, 1818, 1821, 1822, 1824, 1845, 1846, 1847, 1850, 1852, 1857, 1863, 1865, 1866, and 1877. The warmest of these was 1852, when the mean temperature in London was 48.9°, or rather more than a degree lower than that of the month that has just passed away. The maximum readings observed in the month under review have been exceptionally high; and those of the 5th and 10th, when the thermometer in the shade rose to 64°, have only been exceeded once during the present century. This was on November 8th, 1847, the reading being then as high as 67°."

— THE annual dinner in connection with the ASTWOOD AMATEUR GARDENERS' SOCIETY, established some five or six years ago in the interests of horticulture, took place last week. After the dinner Mr. James Hiam read two papers, one on planting fruit trees and the other on planting Potatoes. The subjects were well treated and listened to with great attention. Several new members were admitted to the Society, which meets every Tuesday evening to discuss matters relating to horticulture. A library is attached, the books of which are mostly upon gardening subjects.

— THE *Liverpool Mercury*, referring to FOREIGN VINEYARDS, says—"In presence of the disease which has spread over almost all the vineyards of France, public attention has been latterly directed to the hitherto neglected wine-growing districts of Italy and Greece, which have hitherto been notoriously neglected. Many scientific men believe that the Grape fields of France and Spain have been for the time exhausted, and ought to be allowed to lie in fallow for some years. In the meantime we might be allowed to test the capabilities of the land of Greece and Italy for producing the Vine, for which we have hitherto looked to a somewhat limited district. Neither of these countries has had a fair chance in modern times in competition with France and Spain, although ancient poets sang the virtues of their wines before it was proposed to transplant the Vine to more western climes."

— AN address originally delivered before the Chichester Working Men's Institute, by Lord Henry Gordon Lennox, M.P., entitled "A WINTER IN MADEIRA," has been issued in pamphlet form, containing thirty-seven pages of interesting and instructive particulars concerning that island. The principal physical features, climate, productions, and other matters are discussed briefly but lucidly, and several facts of great interest are mentioned. Alluding to the cultivation of the land the author writes—"The fertility of the soil is truly astonishing, but unluckily much of the island is too arid and rocky for cultivation at all. Vegetables are produced in the greatest abundance, and it was pleasant enough to have Green Peas and French Beans all the winter; but as a rule all vegetables grown in Madeira are inferior in quality to those grown in England."

— IN another portion of the same work the FRUIT IN MADEIRA is thus described—"Fruit of almost every kind is to be found in Madeira, but those which flourish most are from the tropical climes. Bananas grow in greatest profusion, and are of the highest quality. So general is the consumption of this fruit that it might almost be reckoned as among the food of the people. Custard Apples (*Anona*), Mango, Guava, the Loquat, a most beautiful tree bearing deliciously scented white flowers and excellent fruit when ripe; it is in colour yellow, and the shape is of small Plums. Pine Apples are very fine, and are beginning to be largely exported to London, but in Madeira they only ripen under glass, although not requiring any heat beyond the rays of the sun. Oranges, Peaches, Apricots, and Strawberries are also to be found, but the former, owing to deficient cultivation, are very inferior to those coming from Malta, Spain, or Portugal. Peaches and Apricots grow to no size, and have little or no flavour, and Strawberries are only obtained by the expedient of giving the growth of the plants a check or artificial winter by stripping off the leaves and tendrils, and even then they only do well in the colder atmosphere of Comacho and the hills. Besides these there are the Indian Cherry (*Eugenia braziliensis*), the Pomegranate, the Cape Gooseberry well adapted for preserving, and also the Bilberry and Alpine Strawberry, which flourish in a wild state." It is rather strange, however, that the author should refer to *Bougainvillea spectabilis* as having never flowered in England.

— THE culture of the COFFEE PLANT is likely to form a substantial industry in QUEENSLAND. We learn from the *Queenslander* that Mr. Pink of the Botanic Gardens has lately had applicants from the Rosewood Scrub for Coffee plants to an extent far beyond his ability to supply, the stock of young Coffee trees when he took charge of the gardens having been reduced to a minimum. Upon questioning his applicants he is told that there is one German selector in that district who some few years ago planted many Coffee trees. These have thriven well, and are now in full bearing, and the enterprising owner gathers his crop and obtains 8d. per lb. for it in Brisbane. So remunerative does this selector find the occupation, that he has expressed his intention of troubling no more with Maize-growing and Pumpkins, but has decided upon planting all his land with Coffee. His neighbours, seeing how successful he is, wish to follow his example, and in order to secure plants have applied to the Gardens.

— THE following GARDENING APPOINTMENTS have been made through Messrs. John Laing & Co., Forest Hill, S.E.—Mr. W. Taylor, late gardener to Prince Christian, Cumberland Lodge, succeeds Mr. F. Allen as gardener to Rev. Geo. Faithful, Storrington Rectory, Pulborough, Sussex. Mr. Charles Rann, late gardener to W. Morris, Esq., Kent Waterworks, has been appointed gardener to J. P. Murphy, Esq., Q.C., Lowood, Upper Norwood. Mr. Albert Early, late gardener to Mrs. Black, Blackheath Park, succeeds Mr. Barnes as gardener to Geo. Rawlinson, Esq., Woburn,

Croydon. The following numerous gardening appointments have also been recently made through Messrs. J. Veitch & Sons, Chelsea:—Mr. P. Hickman, late gardener to C. M. Kennedy, Esq., Newport Tower, Berkeley, has been appointed gardener to C. Willock Dawes, Esq., Burton Hill, Petworth. Mr. G. Butt, late gardener to Sir W. Salt, Maplewell, Loughborough, succeeds Mr. Hovell as gardener to Jas. Thorpe, Esq., Coddington Hall, Newark. Mr. Geo. Parker, late foreman at Cobham Hall, Gravesend, succeeds Mr. Melville as gardener to M. P. W. Boulton, Esq., Great Tew Park, Enstone. Mr. Thos. Dell, recently gardener to the late E. Hermon, Esq., Wyfold Court, Henley-on-Thames, succeeds Mr. Cordery as gardener to Sir John Kelk, Bart., Tedworth, Marlborough; and Mr. Fredk. Moore, late gardener to Prince Lichtenstein, Eisgrub, Austria, succeeds Mr. Pritchard as gardener to H. Woods, Esq., Warnford Park, Bishop's Waltham. Mr. B. S. Williams informs us that Mr. David Long, late gardener to A. Southard, Esq., Bracknell, succeeds Mr. Mitchell as gardener to G. Williams, Esq., Scorrier House, Scorrier, Cornwall. Mr. J. Hughes, late gardener to G. Wilkes, Esq., Chadwick Hall, Temple Balsall, has been appointed gardener to H. F. Osler, Esq., South Bank, Edgbaston, Birmingham. Mr. James Spong, gardener to John Clerk, Esq., Rolleston Hall, Leicester, desires us to announce his address in these pages and in the Horticultural Directory; but, with many other addresses from gardeners and nurserymen, it arrived too late for insertion in the Directory, which is now printed. These shall, however, receive attention in the next edition.

— VICK'S "Monthly Magazine" for November, in recounting a visit to Europe, gives clear illustrations of HYACINTH PROPAGATION IN HOLLAND, with the following remarks upon the methods adopted:—"All who have had experience with Hyacinths know that little pointed bulbs form at the base of the large ones, which, after becoming large enough to form roots, may be removed from the parent bulb and put out to grow to flowering size, which they will do in two or three years. These, however, do not furnish young bulbs as fast as the growers require, and recourse is had to other methods to hasten their production. One plan is to make cuts across the base of the bulb. This is done in June after flowering, and the cut bulbs are replaced in the ground. They throw out around the cuts a great many young bulbs. These are planted in a mass without separation the first season, the second divided, and in three years make strong flowering bulbs. Another plan is to cut about one-third of the base of the bulb entirely away, leaving it somewhat hollow. This is not done until July or August. By this process an immense number of young bulbs are formed from the cut scales, but not as large in size as by the previous process. New sorts are, of course, grown from seed, and seedlings bloom the fourth year."

— AT the second lecture on HORTICULTURAL BUILDINGS delivered by Mr. F. A. Fawkes at the Crystal Palace on the 23rd ult., the various qualities of glass and different methods of glazing received attention. The construction of stages for plant houses, ventilation, and painting were also fully considered, and where necessary illustrated by diagrams. The following remarks upon glazing will interest some readers:—

"Putty-glazing is by no means perfect; the putty is apt to peel off, crack, form crevices for the retention of moisture, and cause the woodwork to rot. Then it is troublesome to renew glass when necessary, as well to put it in in the first instance. No doubt putty-glazing is crude and unmechanical, and horticulturists would welcome any advantageous method of superseding putty-glazing, but for purely horticultural purposes no system hitherto invented has proved a successful rival of putty-glazing, and I cannot conscientiously recommend any of them for glazing purposes. In some cases the glass is held in its place by metallic slips, in others by compressible metallic bars, in others between slips of vulcanite or other elastic substance, the glass and vulcanite being held together by wood or metallic capping and screws; in others the glass drops into grooves prepared to receive it. In all these cases the glass comes in contact

with either a metallic or elastic substance. In the former case there must be a sufficient amount of 'play,' or the glass will break; in the latter case atmospheric influences will rapidly decompose the elastic substance, when there is far more trouble and expense to replace such substance than to reputty a house. If there be 'play' between the glass and its supports hot air has opportunity for escape; the house cannot be properly fumigated; crevices for the retention of water by capillary attraction abound, and the glass is liable to subsequent breaking by the freezing of this water. For other than strictly growing horticultural buildings mechanical glazing may frequently be employed with benefit, but for these structures a puttied roof is safest. If putty cracks it is because it gets too hard, and that may be avoided by putting a little tallow in when made—say nine parts good boiled linseed oil, and one part tallow mixed with whiting to required consistency. It is frequently recommended to employ bottom putty only—i.e., imbed the glass in putty, sprigging it at the top with copper tacks. This will prevent trouble from putty peeling at the top, but is not so sightly as the old plan. If top putty be used it should not cover a large area of glass, and the surface of putty next the glass should slope well, so as not to retain moisture."

The concluding lecture was given on the 30th ult., when the method of heating houses chiefly occupied attention, particulars being given of the quantity of pipes required to produce the requisite heat in different structures, the capacities of boilers, and many other important matters.

A ROCKERY FOR ALPINE PLANTS.

(Continued from page 490.)

IF the object of a rockery were only the decoration of our garden far more showy plants than those described might be grown upon it; but we have assumed that it is intended to grow plants for which this kind of cultivation is especially suited. If, however, the soil of a garden is stiff, cold, and unsuitable to delicate or capricious plants, there may be many, which will prove hardy and will thrive on the rockery, which will fail in the mixed borders. I have known this to be the case with Hepaticas, which delight in a level well-drained nest amongst stones, in which their roots can penetrate to a great depth without finding water-logged soil. The same may be said of the double forms of the common Primrose. The white *Primula cortusoides amoena*, too, is quite hardy and produces trusses of flowers on my rockery of a size I never saw elsewhere, even in a greenhouse. I have not mentioned the varieties of *Phlox setacea*, which on favoured soils may do well enough on level ground; but even the old white *P. Nelsoni*, the best of all, not excepting the many new varieties, is hardy here only on rockeries. The yellow-leaved form of *Lamium maculatum* may take too much room to be allowed to occupy places for which alpine could be found; but till they are ready try it, and you will hardly banish it after you have once seen how handsome it is.

I regularly grow on my rockery several half-hardy shrubs, raised from cuttings inserted in store pots in autumn and potted in spring ready for planting out. Many of these flower late into autumn. *Abelia rupestris*, with Myrtle-like foliage and waxy white flowers freely produced all summer, is one of the best of these. Two *Hypericums* sold as *H. patulum* and *H. uralum* are treated in the same way and succeed very well. *Cistus crispus*, with flowers of the most vivid rose colour, is another; and the most free-flowering of all the shrubby evergreen *Veronicas*, which I call *V. parviflora*, is now at the end of October covered with lovely sprays of flower. It strikes very readily and grows very fast. All these shrubs are hardy in some parts of the kingdom, but they never survive a winter here if left out, or they might be rather troublesome.

Next there are several biennials or quasi-biennials for which the rockery is the best, if not the only place. *Calandrinia umbellata* is classed as a perennial, but I treat it as a tender biennial, and a good plant of it in bright sunshine in June is a very beautiful object. *Saponaria ocyroides* does best treated in the same way, except that it never wants winter protection; a fine mass of flower is presented by a two-year-old plant in May. *Delphinium nudicaule*, also biennial in most cases, flowers late the year it is sown, and for a long period in its second year. *Convolvulus mauritanicus* is a most easily managed plant. Cuttings inserted at the end of summer may be planted out in May straight from the store pot. They grow fast and flower all the summer, but they should be allowed to extend their growth to the bottom of the rockery.

Several dwarf annuals may be added, especially the many coloured forms of *Leptosiphon roseus*, and a neat little dwarf cruciferous plant, *Ionopsidium acaule*. Of this several sowings

should be made, and it may be kept in flower till Christmas. These annuals may be sown where they are to flower, but may require guarding against slugs with circles of perforated zinc 3 inches high. If the rockery is not yet filled for the season, such dwarfs as *Alonsoa incisifolia*, *Mimulus Harrisoni*, *Lobelia Erinus* may be planted in May in the vacant positions.—C. WOLLEY DOD, *Edge Hall*.

SPECIMEN-PLANT GROWING.

UNDER the somewhat singular heading of "Responsibilities of Gardeners" a discussion appears to have arisen as to whether plants in pots are better grown in large or in small gardens. Your correspondent "SINGLE-HANDED" appears, as is natural, to consider the best examples are seen in small or moderate-sized gardens, while some "many-handed" contributors, also very naturally, appear to think differently. One of them on page 431 stated that "almost without exception" the plants exhibited at metropolitan and provincial shows were grown "by subordinates." This in my experience is certainly not so; but in saying this I do not imply that those who have the charge of large gardens could not have grown the plants equally well had they been required to do so, and had the opportunity of giving the necessary personal attention to the work.

It is idle for anyone to argue that routine work of the garden is done better in a large place than in a small one, or *vice versa*. The question is often one of means rather than of men, or how would stand the cases of those men who have passed from small to large gardens?

In large gardens the multitudinous duties of a gardener prevent his devoting personal attention to specimen-plant growing, nor are exhibition plants needed in one large garden out of ten. I should doubt even if your correspondents who claim that the best plants are grown in the largest gardens grow exhibition plants themselves; but whether they do so or not, their capacity as gardeners remains the same.

Generally speaking, the best specimen plants are grown in comparatively small gardens and not by subordinates in large gardens. If your correspondent, to whom I have alluded, had seen the wonderful examples of *Chrysanthemum* culture at the chief metropolitan and provincial shows lately he would have found that scarcely any of them were grown by subordinates in great places, but by the exhibitors personally in small gardens. The same rule holds good in respect of exhibiting specimen plants in summer; not 5 per cent. of which come from the so-called "great gardens." Such specimens are of little or no use in the mansions of the great. What are known as "decorative" plants are needed there, and are generally well grown and spoiled quickly. That many young men can grow those plants well goes without saying, or they would not retain their positions; but this is no evidence that the chiefs could not grow them equally well if they could bestow on them personal attention.

It is not wise to contrast the work done in gardens in the way in which the subject has been treated, and I am unable to congratulate any of your correspondents on their judgment in this matter. Many men in both large and small places do well, and would do better if they had the means; and although I have had some experience in showing that satisfied me, I am far from saying that those are the best gardeners who win the most prizes. Some of the most competent men never exhibit, in fact many of them are not allowed to do so. These cannot be judged by the exhibition standard, and asking gardeners to show their cards as a test of ability is not far removed from childishness. Let no one think I am reflecting on the abilities of men who do exhibit successfully. I am not likely to do that. They have the means of showing their work, but they could not show it if they did not do it.

The gardener who gives the greatest satisfaction to his employer, whether by growing huge specimen plants and large bunches of Grapes for exhibition, or by growing smaller plants for house decoration and medium-sized bunches of good Grapes for everyday use, is best contributing to his own comfort and professional reputation, however large or small the garden may be in which he is engaged.—A JUDGE.

PRUNING GOOSEBERRY AND CURRANT BUSHES.—As the pruning of small bush fruits is on hand it would be well to know the experience of others on the subject. In pruning these bushes there are two ways adopted by cultivators, and as the best way has not yet been decided a discussion on the subject would be useful to many. I am a young gardener, and the way I have been taught to prune Gooseberries is this:—Leave such branches as contain good firm buds with the bark of the shoots cracked: this is good ripened wood. Small shrunk wood should be removed but not cut off close to the

branches, three-quarters of an inch being left so as to form a spur. As to how many shoots should remain entirely depends on the strength of the branches, two to four being the maximum, selecting those pointing outwards, shortening and leaving them about 8 inches long. Some gardeners cut the shoots smoothly off close to the old wood, and say if the least portion be left it produces useless shoots the next season, and what shoots are left should be left entire. In pruning Red Currants I have been taught to cut back lateral growth to about half an inch, leaving short spurs which are covered with fruit buds, and shorten the leader, leaving it about 6 inches long. Some gardeners trim them well, cutting what are removed clean away, and say the terminal shoot should be left and three or four below it, leaving them entire; the fruit being borne on the previous year's wood, and the clusters of fruit being much finer than those from spurs.—A YOUNG GARDENER.

LAWNS IN WINTER.

IN our pleasure grounds of twenty-five acres or more we have much short grass and many trees, both evergreen and deciduous, and from the beginning of October until now the latter keep our lawns in an untidy state; but now the leaves have all fallen we give one thorough cleaning, and this is all that is wanted the whole winter. In cleaning lawns and pleasure grounds all rubbish should be removed. Allowing the leaves to remain under the clumps and bushes will soon produce more work, as the first wind will bring many of the leaves on the grass again; but if all the leaves are raked from round the bushes first, and the lawns swept afterwards, there will be an end of cleaning for several months. Where there are many worms in the turf their casts are now disfiguring the grass, and these should also be swept away. As soon as the sweeping has been done a roller should be run over the surface, and this will impart a very neat appearance to it. If the roller is light it should be taken over the same part two or three times.

When the ground is rather dry is the best time to sweep, but the rolling may be done when the turf is quite soft. Where the grass is very rough it might be cut after it is rolled some days, but it is tough now. We are finishing dressing our lawns for the winter, and they look almost as well as they did in summer.—M.

FLOWERS FOR CUTTING.

IT is surprising how greatly the demand for flowers has increased in recent years. I know cases where the supply of fruit to the house has been decreased in order to allow much of it to be sold; but there are few cases where the flower supply is treated in the same manner. On the contrary, year by year shows a steady increase in the quantity grown. Quite as many flowers are required and produced in what was called the dull season for flowers as at any other season of the year. Now there is no particular month when flowers may be allowed to become scarce without some danger to the credit of the gardener. As gardeners, we have great reason to thank the florist for the help he has given us. It would have been impossible twenty years ago to cut a hundred trusses a week of brilliant *Pelargoniums* through chill November, and still have as many at the beginning of December as there was a month earlier. I am not talking of a large collection, but of as many as filled a four-light frame. Then that sweetest of winter flowers, *Bouvardia Vreelandi* and its red counterpart *B. Hogarth*, or the deeper-coloured *B. elegans*, which have yielded us six hundred trusses through last month from a score of plants. Or the Chinese *Primula* in its many-hued shades, which, single or double, forms a bouquet of itself, and with its foliage. But what need is there to recapitulate the lovely flowers the present generation of gardeners have at this period? Provided always we have strong-grown healthy plants, the main principle is to keep them growing healthily. This may seem a mere truism, but I have noticed repeatedly that with the advent of short days there also arises a tendency to starve plants in that greatest of all necessities water, and heat sufficient to keep the roots moving. There is no greater fallacy in gardening than that of expecting plants which naturally bloom in summer to bloom healthily and profusely in late autumn and winter without help from fire heat. Let us take the *Pelargonium* as an example. Give it an even temperature of 55°, it may sometimes be a little lower, sometimes a little higher; give water as you would in summer, or whenever you see the soil requires it; keep the plants near the glass, and you will find that active and healthy roots are continually produced. A short healthy growth is produced with a truss from every joint, with large and well-coloured pips. It is just the same with *Bouvardias*, *Primulas*, *Callas*, double *Pelargoniums*, and *Azaleas*. They may vary in some respects, but the same principles hold good, and, if acted on, how satisfactory to everyone concerned are the results.

Then, having the flowers, what about cutting them? Personally I

do not like cutting good flowers, but it has to be done, and cutting them oneself is hardly so bad after all as seeing them cut by someone who has no interest in them beyond securing a gay bloom to be as lightly thrown away as it was lightly gathered. The only safe method of cutting flowers is to gather the oldest and most developed blooms first. That is a point which should always be insisted on. Continuous-blooming plants always repay for hard cutting. You may go once a week, or two or three times a week, to a plant and cut the best-developed of its flowers, and that plant under proper conditions will have more developed when your next visit is made. And then there remains a very necessary

condition in the production of flowers for cutting—you must grow the right sorts. A collection of Pelargoniums or Chrysanthemums may be unique, but the man who relies on a half dozen proved varieties of each will be able to cut blooms when his neighbour with many varieties cannot.—A NOR'EASTER.

TROPEOLUM SPECIOSUM.

WE have received so many inquiries respecting this beautiful Tropæolum that we have been induced to give an illustration showing the chief characteristics distinguishing it in the form of



Fig. 83.—TROPEOLUM SPECIOSUM.

the leaves and flowers. As will be readily seen, it approaches *T. pentaphyllum* very closely, but it is far more attractive than that species when in its best condition—*i.e.*, as it is grown in some parts of Scotland. The flowers are marked by a most striking hue—a rich bright crimson inclining to scarlet, and are produced so freely that the plant often appears to be a glowing mass of flowers. It is one of Mr. W. Lobb's introductions, having been found by him in Patagonia, and introduced to cultivation in this country through Messrs. Veitch of Exeter. Mr. Dickson, Arkleton Gardens, Dumfriesshire, with whom the plant succeeds admirably, has favoured us with the following cultural notes.

"This beautiful climber delights in a humid atmosphere, hence one of the reasons why we see it growing so luxuriantly here. I

have also seen it growing and flowering well in various parts of Scotland, in all situations, and also under the shade of trees; indeed, I know of nothing so pretty for covering the bare limbs of shrubs and trees.

"I would recommend those of our friends in the south who have not succeeded in growing it satisfactorily to try it in some part of their ground where it will be shaded from the mid-day sun, or in a plantation or shrubbery, where I am sure it will soon establish itself if left undisturbed for a few years. I have never had any difficulty with it here; it has been in the same position for eight or nine years, and plants are springing up in all directions.

"Whenever I want to increase my stock I lift a few of the fleshy roots (some say it produces tubers, I have never found any), and

plant them at once where they are wanted to grow, and we have very seldom any more trouble with them. The best time for this operation is November or December. It may be grown in pots and trained balloon-shape, or in any other form the grower may wish. The soil I have found it thrive in best is a light turfy loam, say three parts loam, one part river sand, and one part leaf soil.

"I may add that I have seen this plant flourishing in front of a farm house, where no preparation had been made for it whatever, but just planted in the natural soil, which was light and gravelly."

ABUTILONS ALL THE YEAR ROUND.

THERE are no plants which will flower with more certainty all the year round than Abutilons. There is not a week in the year in which we do not gather their blooms, and little or no extra care or attention is devoted to them to insure this. So long as they can be kept growing they continue blooming, and this is a simple matter. In summer they will flower freely out of doors or in a cold frame, and now they only need enough heat to keep them growing and flowering. It is also an advantage to have them near the glass, as this makes the wood short-jointed and floriferous. At the end of a Pine house we have two planted out for the winter, and they are more useful than any we have had. Handfuls of blooms are gathered weekly, and unopened buds are on them by the score. The blooms can be gathered singly and used in this way in small glasses, or sometimes the point of a shoot with upwards of a dozen open flowers can be taken. Although the blooms are all of similar shape the colours are varied. J. MUIR.

SUCCESSFUL CULTURE OF PEARS IN POTS.

IT is a popular though erroneous impression that fruit in the south-west of England and Wales will grow "anyhow." That there are favoured districts in this division cannot be denied, but to assert all alike are exceptionally well adapted for open-air fruit culture is decidedly a mistake. For instance, at Bridgend, Glamorganshire, it is useless to attempt open-air culture of the Pear; at least, such is the case in the gardens at Ewenny Priory, the residence of Col. T. Pieton Tuberville. This has led to the adoption of pot culture under glass, with the result of splendid crops of fruit very superior to those obtained in the generality of gardens from trees on walls. The fruit are not merely superior with regard to size, brightness, and clearness, but the quality is of the best description; *Beurré Diel* and *Duchesse d'Angoulême*, for instance, proving delicious. Added to this good crops are invariably secured, the only cost beyond original outlay on unheated houses being for manual labour, water being required in great quantities in the growing season, oftentimes at the rate of four waterings per day.

Two houses are devoted to the Pears, one a span-roof running north to south, the other a lean-to with a southern aspect. In both houses in order to insure well-balanced specimens, even crops, and thorough ripening of fruit and growth, it is found necessary to turn them frequently. Almost every day, in fact, they receive this attention. By this it will be obvious the roots are necessarily confined to the pots, and, as a consequence, require unlimited supplies of water, varied with liquid manure when in full growth. How well Mr. Hawkins, the gardener in charge, attends to this may be gathered from the fact of a tree of *Doyenné du Comice* perfecting six dozen fruit, another of *Beurré Diel* four dozen, of *Duchesse d'Angoulême* from seven to eight dozen, of *Pitmaston Duchess* four dozen, and proportionately heavy crops were borne by trees of *Durondeau*, *Beurré Superfin*, *Beurré Esperen*, *Marie Louise*, and *Brockworth Park*, the fruit in each instance being remarkably fine, many weighing a pound. Some of the best were recently much admired at a meeting of the Royal Horticultural Society, South Kensington; and again at the Bristol Fruit and Chrysanthemum Show, where they would have secured first honours but for over-ripeness. Every autumn the trees are repotted, the ball of roots being reduced so as to admit of repotting into the same sized pots, these varying from 12 to 15 inches in diameter. Rich loamy soil is employed, and the trees are wintered where grown, the precaution being taken of covering the pots with rough litter to prevent injury by severe frosts.—W. I.

CHRISTMAS REQUISITES.—The time is fast approaching when plants and flowers for decorative purposes will be wanted in abundance. Gardeners who have to supply the above generally prepare by having the foliage and flowers in the best possible condition. Many bulbs, *Primulas*, *Cinerarias*, *Calceolarias*, and *Cyclamens*, will be very acceptable, also with the flowers of *Chrysanthemums*, and a few blooms of the *Gloire de Dijon* Rose, which still keeps expanding its fragrant

flowers. There seems to be a plentiful supply of Holly berries this season in many places. Vegetables, too, are as much in demand as flowers at Christmas. Forced vegetables of many kinds are prepared; and as new Potatoes are one of the principal dishes for Christmas or New Year's day they will require a great deal of attention. If the weather continues mild it will be much in favour of the advancement of such crops.—A NORTHERNER.

BRENTHAM PARK, STIRLING.

IN these days of steam-driven machinery, steam navigation, steam locomotion, and telegraphic despatches we should not, perhaps, be surprised at the rapidity with which mansions appear. Landscapes are created, even, and great gardens suddenly spring into existence. The evidence that yearly the number of fortune-possessing individuals increases may be seen in every town, despite the assertion of those who think the country is "going to the dogs;" and nowhere is it more evident than in the vicinity of the famous northern town, around which are Scotland's most glorious battlefields. Tourists visit the battlefields and sing enthusiastically "Scots wha hae;" but gardeners seek such gardens as the famous Fernfield, Bridge of Allan, where Dr. Paterson grows such fine Orchids, or the now-famed Brentham Park; and instead of howling ancient battle cries out of tune or to no tune, clutch their note-book and pencil as an aid to memories somewhat treacherous. At least this is what we did when last we visited the town of Stirling, and of the notes then taken we now make use.

Brentham Park is one of the new establishments to which we referred. Beautifully situated, it commands a splendid view of the Forth in all its river-windings down to where it broadens into the noble Firth bearing the same name. With a grand country on each side, the hills of Fife and the Lothians in the eastern distance, and the picturesque, half ancient half modern town of Stirling, with its high-perched castle to the left, the Wallace monument behind in the foreground, the bare-growing Ochils in the background to the right and the distant Grampians to the left, and the aforementioned battlefields all around. All this is well worth seeing. But as we walk from the town we are more particularly struck with the grand old Elms, centuries old, which line the roadway and turn it into an avenue of which any town might well be proud.

Brentham Park, although quite modern, is a fine building, and, unlike many new places, is surrounded with very fine trees. The house is reached by means of a fine drive, not very long but well kept, and enriched with young and thriving specimens of shrubs and hardy Conifers. The building is one of the best in the vicinity of Stirling, and attached to it is a fine conservatory, at once harmonising with the architecture and yet favourable for the growth of the plants employed for furnishing it. Among others we noticed in it fine robust specimens of *Lapagerias*, red and white. The rest of the houses are situated in the kitchen garden a short distance from the mansion. The first we entered was a Peach house. Peaches covered the back wall and half of the roof; in the centre of the house were a number of healthy Pear and Plum trees in pots. The fruit from these was mostly gathered, but, judging from the health of the trees, we could well believe that the crops both from the Peaches and the others had been good. The next division was also devoted to Peaches and Nectarines, and as this is used for a late house we had an opportunity of judging what Brentham Park could produce in the way of Peaches, and finer fruit we have never seen. The trees, too, were extremely clean and healthy; not a spider, not a thrips, not a green fly to be seen. We asked Mr. Macleod what means he took to keep his trees so clean and healthy. He pointed to a hose attached to a pipe. Once we saw, in an Edinburgh nursery, a man clearing scale from plants by simply laying them on a clean floor and scouring off the insects by subjecting them to a thin stream of water as it issued from the nozzle of a hose affixed to pipes where the pressure was high. Remembering this, we asked no further explanation. "And how do you get the fruit to such a marvellous size?" was our next question. "By spreading a little guano over the borders every time they are watered, and letting them have plenty of it," was the answer; and, he added, "keeping them clean and allowing them to bear plenty of foliage."

On the way to the Orchid houses we passed through three vineries all with good crops of good serviceable fruit; then we enter what was once an ordinary plant stove, now it is an East Indian Orchid house. Most of the plants were not yet very large, but all showed that they have been judiciously cared for. Some fine *Phalaenopses* were in exuberant health. *Vandas*, *Aerides*, *Saccolabiums*, and *Dendrobiums* were in great numbers, extremely clean and healthy, although the house is too wide and the plants rather crowded. In the departments devoted to *Lælias*, *Cattleyas*, and other Orchidaceous plants were many rare and fine speci-

mens. In the Odontoglossum house were great numbers not only of Odontoglossums, but of other kinds that succeed under cool treatment. All were thriving well, but none more so than the Masdevallias, many of which are very rare; indeed the collection is especially rich in the rarest and most expensive species and varieties. We noted a few examples, but on referring to our notes we find that to reproduce all would be to fill the columns of the Journal with a large catalogue. To indicate what the collection is like we will give only those that were in bloom at the time of our visit (middle of September).

Peristeria elata, *Epidendrum prismatocarpum*, *Acrides quinquevulvum*, *A. suavisimum*, *A. Thibautianum*, *Dendrochilum filiforme*, *D. glumaceum*, *Cypripedium Spicerianum*, *C. Sedeni*, *Zygopetalum maxillare*, *Z. Mackayi*, *Z. Gautieri*, *Dendrobium heterocarpum*, *D. primulinum*, *Cypripedium Haynaldianum*, *C. barbatum grandiflorum nanum*, *C. Schlumieri*, *Oncidium fragrans*, *O. incurvum*, *O. macranthum*, *O. leucochilum*, *O. ornithorhynchum album*, *O. tigrinum*, *O. aurosium*, *Odontoglossum Roezlii*, *O. Pescatorei*, *O. Lindleyanum*, *O. Uro-Skinnerii*, *O. madrense*, *O. vexillarium* (many fine varieties, some with very large flowers), *O. cuculatum*, *O. Dawsonianum*. *Cattleya Harrisoniae*, *C. violacea*, *C. speciosissima*, *C. crispa superba*, *C. Mendelii*, *Laelia elegans Turneri*, *L. Dayanum*, *Saccolabium Blumei* (majus (eleven sp. ke.)) *Acineta Parkeri*, *Stanhopea elegans*, *Mesospinidium vulcanicum*, *Maxillaria grandiflora*, *Restrepia antennifera*, *R. fuscum*, *R. guttata*, *Dendrobium Jamesianum*, *Masdevallia Veitchii*, *M. nycterina*, *M. Backhousiana*, *M. bella*, *M. ignea*, *M. Shuttleworthi*, and *M. chimera*.

Scores more were showing spikes, but the names of these we did not take. In conclusion, we only add that a few years hence Benthall Park will be a great attraction to Orchid-growers, for Mr. Smith spares neither trouble nor expense in procuring the very best kinds and in well providing for them.—VISITOR.

NOTES ON BEDDING PLANTS.

In reading the article by Mr. Taylor on page 475, November 24th, I, like him, must confess it is difficult to provide variety year after year. Two years ago I determined to try some of the tender plants, but at the same time kept a stock in reserve in case of failure. One bed was to be planted with *Pelargonium Manglesii*, and instead I planted it with *Begonia Rex* edged with *Sedum aizoides* variegatum and a plant of *Ficus elastica* in the centre. This bed was the great feature of the garden and was much admired. *Colcuses*, *Iresines*, and *Alternantheras* have succeeded well this year, better than last year. *Vesuvius Pelargonium* I find splendid till heavy rains come. Flower of Spring keeps good foliage and is very telling. Robert Fish surpasses all, for it blooms continuously through rain and sunshine. Cannell's dwarf *Ageratum* is a useful bedding plant, and so is *Tropeolum Vesuvius*.

Calceolarias and *Verbenas* fail if planted successively in the same soil. The best results are obtained with *Verbenas* when they are planted in fresh loam from an old pasture. I only plant *Verbena Purple King* in the flower garden because it is difficult to obtain other plants with similarly coloured flowers.

I have derived some useful hints on the best fruits lately from notes in the Journal, and hope we may have some as useful notes on bedding plants.—W. M. GEDDES, *Thrumpton*.

CHRYSANTHEMUM SHOWS.

THESE two northern Exhibitions bring the season almost to a close, for the only one now to be held is that at the Alexandra Palace on the 9th inst., which owing to the late date cannot be expected to be extensive, though we are informed the entries are fairly satisfactory.

LIVERPOOL.—NOVEMBER 30TH.

The second Exhibition of this Society was held in much more favourable weather than last year, and on the whole the Show was finer. It was feared, owing to the lateness of the date fixed for the Exhibition, that the supply of cut blooms and *Chrysanthemums* in pots would be limited and poor; but the blooms were as good as are generally seen at Liverpool, and numerous shown. Some of the trained plants, however, showed signs of retarding, and the foliage had begun to suffer. The show of fruit was considerably larger and finer than that of last year, especially the Pears and Apples, but the Grapes were a little behind the usual excellent quality seen at Liverpool.

Chrysanthemums in Pots.—In the class for six large-flowering varieties four lots were staged. Mr. J. Stephenson, gardener to Major Pilkington, Windle Hall, took the lead with closely trained plants, the foliage very fresh and the flowers large. The varieties were *Mrs*

Hope, Prince Alfred, Jardin des Plantes, Barbara, Golden Empress, and Mrs. G. Rundle. Mr. J. Hutton, gardener to R. Roberts, Esq., Aigburth, was second, his plants having smaller blooms and not so neat. Mr. J. Hurst, gardener to W. B. Bowring, Esq., Aigburth, was awarded the remaining prize. In the corresponding class for four plants there were again four entries; Mr. C. Finnigan, gardener to W. Burnyeat, Esq., Huyton, leading with fine plants in every respect of Lady Talfourd, Mrs. G. Rundle, Mrs. Dixon, and G. Glenny. Mr. J. Stephenson was second, and Mr. W. Tugwood, gardener to J. G. Morris, Esq., Allerton Priory, Liverpool, third. For six Pompons Mr. W. Tugwood was first, showing neat well-flowered specimens of Prince Victor, Lilac, White, and Golden Cedo Nulli, St. Michael, and Aigle d'Or. For four plants Mr. C. Finnigan took the lead with good plants, followed closely by Mr. W. Tugwood. For one standard Mr. J. Hutton was awarded the first prize for a well-grown plant of Mrs. G. Rundle, the blooms being of a large size. Mr. J. Stephenson and Mr. W. Tunnington, gardener to C. McIver, Esq., Calderstone, Liverpool, took the remaining prizes in the order as named. Only two pyramids were staged by Mr. J. Stephenson and Mr. T. Gowen, gardener to J. Cunningham, Esq., Aigburth, who took the first and second prizes. The prizes for twelve untrained plants were taken by Mr. J. Warrington and Mr. F. Faulkner, gardener to F. R. Leyland, Esq., Woolton Hall, and need no further comment.

Cut Blooms.—In the class for twenty-four cut blooms, incurved varieties, Mr. W. Mease, gardener to C. W. Newmann, Esq., Wyncote, Allerton, obtained the first prize and the silver cup. Mr. F. Roberts, gardener to W. D. Holt, Esq., West Derby, was a close second, only being three points behind the premier collection. Mr. J. Jellicoe, gardener to F. W. Gossage, Esq., Wootton, third with rather looser blooms. Mr. Mease's box contained fine fresh blooms of Venus, Princess of Wales, Empress of India, Golden Empress, fine; Queen of England, John Salter, Cherub, good; Hero of Stoke Newington, Bronze Jardin des Plantes, Princess of Teck, Mrs. W. Shipman, Miss M. Morgan, Inner Temple, St. Patrick, and others. For eighteen varieties Mr. G. Mease, gardener to W. Nicol, Esq., Aigburth, was first with fresh, even, and compact flowers, showing well Princess Beatrice, Barbara, and others similar to those above mentioned. Mr. T. Foster, gardener to J. Branker, Esq., Wavertree, second with fresh flowers, but a little looser than those shown by Mr. Mease. Mr. E. Green, gardener to J. Woolwright, Esq., Aigburth, was awarded the remaining prize. Mr. F. Roberts was first with twelve blooms, even and compact; Mr. W. Todd, gardener to J. W. Cropper, Esq., and Mr. T. Foster were second and third, eight stands being staged.

Japanese varieties were shown in better condition and in larger numbers than at this Society's previous exhibition. In the class for eighteen varieties Mr. F. Roberts took the lead, followed closely by Mr. W. Mease and Mr. A. R. Cox, gardener to W. H. Watts, Esq., Wavertree. Mr. Roberts staged fine blooms of Kedive, Peter the Great, Apollo, Cry Kung, Ethel, Striatum, Criterion, Fair Maid of Guernsey, Meg Merrilees, Monsieur Lemoine, Gloire de Toulouse, Nuit d'Automne, Hiver Fleur, and others. Mr. Mease also had fine blooms. For twelve blooms Mr. Jellicoe was first; Mr. R. G. Waterman, gardener to A. Tatc, Esq., Wootton, and Mr. W. Wilson, gardener to H. Cunningham, Esq., Gateacre, were second and third, all staging very fine flowers. Mr. E. Green was also awarded a third prize in this class, five collections being staged. For twelve Anemone or reflexed flowers, not less than six varieties, Mr. Jellicoe was placed first, showing Golden Christine, Fleur de Marie, Louis Bonamy, King of Crismons, Mrs. Forsyth, Bijou, Princess Louise, and Acquisition. Mr. A. R. Cox was placed second, and Mr. Faulkner was third, the last-named having all Anemone-flowered varieties, and many considered he ought to have had a higher position. For twelve Pompons, not less than six varieties, Messrs. Cox, Faulkner, and Finnigan obtained the awards, each staging fine blooms.

Fruit.—There were three entries in the class for twelve dishes of fruit. Mr. Hannagan, gardener to R. C. Naylor, Esq., Hooton Hall, Cheshire, took the lead with fine examples. The Grapes were good in every respect both as regards size and finish; the best dishes being Gros Colman, Alicante, Lady Downe's, and Muscat of Alexandria. Pears, Glou Morceau, large and fine; Beurré Diel, large; Duchesse d'Angoulême, Beurré Clairgeau, good. Apples, Ribston Pippin, King of the Pippins, and a good Conqueror of Europe Melon. Mr. J. Ward, gardener to T. H. Oakes, Esq., Alfreton, was a good second, and staged two fair Pines and a dish of Brown Turkey Figs. Mr. W. Pratt, gardener to Lord Hill, Hawkstone, obtained the remaining prize, and staged Blenheim Pippin Apple very fine. For six dishes, Pines excluded, Mr. J. Hurst was first with Muscat of Alexandria and Alicante Grapes, good; Beurré Diel and Glou Morceau Pears; Ribston Pippin and Blenheim Pippin Apples. Mr. Hannagan was placed second with equally good Grapes, a good Conqueror of Europe Melon, much better Pears, and an equally good dish of Apples. Mr. J. Kelly, gardener to R. Singlehurst, Esq., Aigburth, was third. Pines were good, the fruits being very fine. For two, Mr. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, Derby, took the lead with good Queens; Mr. Tunnington second with fine Smooth Cayennes; Mr. G. C. Salter, gardener to G. D. Lees, Esq., Oswestry, third. Mr. James Bennett, gardener to the Hon. C. H. Wym, North Wales, and Mr. Tunnington, took the prizes for one Pine. Grapes, as before mentioned, were scarcely so good this year. Mr. Hannagan took the lead in the class for Muscats, and staged well-finished bunches, Messrs. J. Hurst and C. Finnigan taking the other prizes. In the class for

two bunches of any white Grape (Muscats excluded) Mr. J. Wallis, gardener to the Rev. Sneyd, Keele Hall, Staffordshire, was first with fine examples of Golden Queen; Mr. W. Mease second with White Tokay; and Mr. C. Finnigan third with Trebbiano. For two bunches of Black Grapes there were nearly twenty competitors. Mr. Wallis was placed first with Barbarosa, Messrs. C. Finnigan and Goodacre second and third. Mr. Wallis was first in the class for four varieties of Grapes, showing Mrs. Pearson and Golden Queen both good, Alicante, and Gros Colman. Mr. Hannagan was second, showing Mrs. Pince in fairly good condition; and Mr. Goodacre third. There were five entries in the class for eight dishes of Pears. Messrs. Hannagan, C. Dallachie, gardener to Mrs. Zwilchenboit, Aigburth, and J. Lowndes, gardener to S. S. Parker, Esq., Aigburth, were awarded the prizes as named. The first included remarkable specimens of Beurré Diel, Marie Louise, Beurré Incomparable, Winter Nelis, Beurré Clairgeau, and Duchesse d'Angoulême. For four dishes the same exhibitor was again first. Mr. J. Wollam, gardener to Col. Blundell, Crosby Hall, and Mr. Goodacre, were second and third respectively. Messrs. C. Dallachie, Hannagan, and S. Whitfield, gardener to J. T. Cross, Esq., Aigburth, were the prizetakers for one dish of ripe Pears. Mr. Hannagan was again first in the class for six dishes of dessert Apples, showing Adam's Pearmain, Ribston Pippin, King of Pippins, Blenheim Orange, Golden Reinette, and Beachamwell. Mr. J. Lowndes was a good second, and Mr. Goodacre third. For three dishes the same exhibitor again took the prizes in the order above named. For one dish L. Garrett, Esq., Chester, was first with Cox's Orange Pippin; Messrs. Wollam and Kelly second and third. Mr. Goodacre took the lead with eight dishes of culinary Apples, and staged grand examples of Alfriston, Cox's Pomona, Dumelow's Seedling, Warner's King, Kentish Fillbasket, Waltham Abbey, and Flower of Kent. Mr. Hannagan was a close second, and Mr. Kelly third. For four dishes Mr. C. Dallachie was first with good dishes of Nelson's Glory and Warner's King. Mr. Wollam followed with Pott's Seedling and Lord Derby, fine and large; Mr. Whitfield was placed third. For one dish Messrs. J. Thomson, gardener to J. G. Morris, Esq., Norfolk: T. Johuson, Lower Bebbington, and J. Wollam, were the prizetakers.

Stove and Greenhouse Plants.—In the class for six stove and greenhouse plants, not less than three in flower, Mr. W. Mease secured the first prize, showing some of his well-known plants—notably, Croton variegatus 7 or 8 feet through and well coloured, Croton Queen Victoria equally fine but a smaller plant, Latania borbonica large and fresh, Ixora javanica well flowered, Calanthe Veitchii 3 feet through, and Centropogon Lucyanus the best plant we have seen. Mr. J. Peers, gardener to R. Rayner, Esq., Wavertree, was second, staging a good Pimelea spectabilis and Alocasia Marshalliana. Mr. W. Bromily, gardener to H. Crossfield, Esq., was the remaining successful competitor, who staged a grand Brainea insignis and Clerodendron Balfourianum. Messrs. J. Peers and W. Bromily were the chief prizetakers for four plants. Six stove and greenhouse Ferns, Mr. J. Peers was first with large well-developed plants of Gleichenia dichotoma and Davallia polyantha. Mr. F. Faulkner, Mr. E. Swift, gardener to N. Eckersley, Esq., Wigan, followed in the order named.

Orchids were better and more numerous than the previous year. For three plants Mr. W. Moss, gardener to W. Holland, Esq., Aigburth, was first with Odontoglossum Roezlii, O. Alexandræ, and Vanda cœrulea (good spike). Mr. J. M. Phillips, gardener to Dr. T. S. Walker, Liverpool, was next, having fair plants of Lycaste Skinneri and Lælia autumnalis. Mr. Sherwin, gardener to S. Sparker, Esq., was third. For two Calanthes Messrs. Sherwin and Bromily were the prizewinners; and Messrs. W. Bromily, Peers, and R. G. Waterman for a single specimen. Three Palms or Cycads, Mr. F. Faulkner took the lead, having good plants of Livistonia australis, Geonoma gracilis, and Latania borbonica. Mr. Peers second. For a single specimen Mr. Faulkner was again first. Epiphyllums were good; Messrs. Barber, gardener to Mrs. Barnsley, Aigburth, and W. Bustard, gardener to J. Lewis, Esq., Aigburth, were the chief prizetakers. For six table plants Messrs. J. Ward and W. Pratt were the second and third prizetakers, no card being placed to the first-prize collection.

Poinsettias, standard Mignonette, Roman Hyacinths, and Primulas were all fine, especially the two last named, the Primulas being large and profusely flowered. The chief prizetakers were Messrs. C. Finnigan, T. Gowen, J. Peers, F. Faulkner, and E. Green.

Bouquets were all that could be desired, the chief prize in the nurserymen's class being won by the Liverpool Horticultural Company (John Cowan), followed by Mr. Gore, florist, Huyton. The corresponding class by Messrs. W. Mease, Bromily, and J. Leadbetter, gardener to T. S. Tinnis, Esq., Aigburth. Mr. J. Phythian, gardener to J. Walker, Esq., West Derby, was awarded the first prize for a light tastefully arranged vase; Mr. Phythian, gardener to Lieut.-Col. Wilson, Aigburth, being second, and Mr. J. Ward third.

Miscellaneous Exhibits.—Messrs. R. P. Ker & Sons, Aigburth Nurseries, staged a choice collection of stove and greenhouse flowering and fine-foliage plants. The Horticultural Company (John Cowan), had a similar group with a choice collection of bouquets and wreaths. Mr. B. S. Williams, Victoria Nursery, Upper Holloway, London, sent a collection of very fine Cyclamens; Messrs. Cranston and Co., Hereford, sent baskets of Carnations in bloom; Messrs. H. Cannell & Sons, Swanley, Kent, a large collection of Zonal Pelargonium blooms and choice Primulas in pots, the former being much

admired. Mr. Middlehurst, seedsman, Liverpool, had some Primulas of a good strain, the plants fully 2½ feet in diameter. Mr. Kipps, gardener to John Crossfield, Esq., Walton Lea, Warrington, staged a box of Chrysanthemum blooms, a sport from White Globe, named Mrs. John Crossfield. The blooms were distinct and beautiful, being white slightly suffused with pink.

The Committee, Mr. Richardson of the Botanic Gardens, and Mr. Bridge, the Secretary, merit congratulation upon the admirable arrangements of the Exhibition.

NEWCASTLE.—NOVEMBER 30TH AND DECEMBER 1ST.

The Committee of the above Show shortly after their late summer exhibition determined to try a Chrysanthemum and winter flower Show, their object being to try if possible to reduce some of their debt. The prize schedule was not very tempting from a monetary point of view, yet the Society threw themselves on the generosity of their exhibiting friends, and, considering that such little time was given, there was a hearty response reflecting great credit on the local exhibitors, who mustered in good force. Speaking generally of the exhibits, it cannot be said that they were equal to those usually shown, but no doubt in another year that defect will disappear.

For a group of Chrysanthemums and fine-foliage plants there were three competitors. Mr. Noble, gardener to Theo. Fry, Esq., Woodburn Gardens, Darlington, was first with a stand neatly arranged, the edging consisting of Lycopods, Ferns, Panicum variegatum, and well-coloured small Coleuses. Mr. Whiting, gardener to E. J. Walker, Esq., was second, and Mr. M. D. Thompson, gardener to Lindsay Wood, Esq., South Hill, third. Both had very good and choice plants in their stands, but their arrangement was deficient in effect. For six miscellaneous plants in bloom there were three collections staged; Mr. E. Adams, Swalwell, being first with a good plant of *Æschynanthus grandiflorus*, *Oncidium flexuosum*, *Ixora princeps*, very fresh; *Statice profusa*, *Tremandra verticillata*, and *Lapageria rosea*, the latter very beautiful. Mr. Noble was second with a good *Cypripedium insigne*, *Azalea amœna*, and a *Zygopetalum* with five spikes and over twenty-seven flowers open. For six fine-foliage plants Mr. W. R. Armstrong, nurseryman, Benwell, was first with a good *Dicksonia antarctica*, *Croton Disraeli*, *Seaforthia elegans*, *Phormium tenax* variegata, and *Latania borbonica*; Mr. Thompson and Mr. Noble following. For six Ferns Mr. Bullock, gardener to Charles Wilson, Esq., Shotley Park, was first with an even specimen of *Todea pellucida*, *Cheilanthes elegans*, *Lygodium scandens*, *Davallia tenuifolia* stricta, and *Adiantum amabile*.

Chrysanthemums.—For six Chrysanthemums, large-flowering, Mr. G. Corbett, gardener to John Liddell, Esq., Benwell, with varieties of Mrs. G. Rundle, Rose Queen, and Mrs. Dixon; Mr. Methven was second with smaller plants, but bearing good flowers. The same exhibitor was also first for three large-flowering, followed by Mr. Bullock. For six Pompons Mr. Methven was also first with white, yellow, and lilac varieties of Cedo Nulli. For three Pompons Mr. G. Corbett was again first, and he was also first with one Pompon, Cedo Nulli, over 3 feet across; and first for one Japanese variety named James Salter. Primulas and Cyclamens were very good for the time of year, Mr. Methven and Mr. W. H. Wilson, Gilesgate, Durham, winning first respectively. Mr. W. R. Armstrong also showed some very fine double white Primulas.

Cut Blooms.—For twenty-four incurved blooms in twelve varieties Mr. Methven was first with Queen of England, Golden Beverley, Fingal, Empress of India, G. Peabody, White Venus, and Mrs. G. Rundle; Mr. H. Burn Bykes being second. Mr. Methven was also first for twelve incurved, followed by Mr. W. H. Wilson. For twelve reflexed varieties Mr. W. Sinclair, Oakfield, Low Fell, was first. For twelve Japanese varieties Mr. Methven again scored first with fine blooms of Gloire de Toulouse, Elaine, Bismarck, James Salter, Peter the Great, Fair Maid of Guernsey, and Fulgore. The same exhibitor was also first for six Japanese and twelve bunches of Pompons. For Camellias Mr. Whitney was first. The Chrysanthemums were not as good as is general at London and good provincial exhibitions, but still, considering that they were not grown specially for the purpose, they were highly creditable to the exhibitors.

The following nurserymen sent large stands of plants, which filled the vacant space in the hall—Mr. Jos. Watson contributing an excellent stand of noble plants; Mr. W. R. Armstrong, High Cross, Benwell, had a similar stand; while Messrs. Wm. Fell and J. Robson and Son, Hexham, contributed grand stands of Coniferae.

CARBONATE OF AMMONIA v. SNAILS.—Concerning the solution of carbonate of ammonia, as used for the destruction of molluscs in gardens, I find that from half to three-quarters of an ounce of this dissolved in a gallon of water appears to be safe for the plants, the stronger solution, of course, for hardier species; but in any case it is not advisable to apply it to either stems or leaves, but to the soil; also cracks or crevices in frames might be washed with the liquid. Thus diluted the ammonia is rather beneficial than otherwise to plants, and I daresay it will destroy slugs small and large, though it does not seem to take much effect upon the larger snails. Soot, no doubt from its free ammonia, is also much disliked by them I find, but that is not conveniently applicable. The ammoniacal liquor from gasworks would answer also; unfortunately this requires a

variable amount of dilution, because its strength is uncertain. The Rev. J. J. Wood has strongly recommended the use of ammonia to kill molluscs.—J. R. S. C.

A WEEK IN LONDON.

CHISWICK.

WELL may a certain writer in the Journal exclaim "Dear old Chiswick!" Those who have been educated there cannot fail to look back with pleasant remembrances, or point to it as an excellent training school. It is a fine school for gardeners and gardening. No doubt those who live within reasonable distance avail themselves frequently of opportunities to see and make notes of the best and most worthy fruits, vegetables, or flowers in the various seasons. Country gardeners have few such chances, and often have to test a number of novelties before finding a really good one; but by a visit to Chiswick and with a little time on hand the best of novelties can soon be noted, as the majority are tested side by side. Unfortunately time did not permit, or an hour or two could have been pleasantly spent in noticing the young Apple trees which had been worked on the various stocks, in order to test upon which stock various kinds grew and fruited best. The stock evidently makes a greater difference than many are prepared to allow.

The pyramid Pears were grand, the trees being pruned and the branches sufficiently thin to admit abundance of light. The fruit was large in size, and of some varieties was abundant, while others had scarcely any. The crop of Apples generally was good, and one quarter of unpruned trees showed fair crops of fruit, which was rather small, the weight of fruit bringing the branches down into a pendulous fashion, which spoiled the appearance of the trees. The cordon Peaches had an irregular crop, some kinds bearing freely, others scarcely at all. A variety called Merlin was ripening, and appeared to be as early as Early Beatrice, and the fruit much larger. It would be interesting to know the quality of this variety.

The large vinery again contained a heavy crop of well-finished Grapes. In a house of such magnitude (I think it is the largest vinery in England) the sight was imposing. At the bottom the fruit was rather small, but when the stage is ascended the bunches are found much larger and finer in every respect than they appear to be from the bottom. In another house the Vines about three years planted were remarkably strong—the strongest I have seen for a long time, and I should consider them too strong to produce well-finished Grapes. The difficulty must be great to thoroughly ripen wood of such strength.

In one of the plant stoves I noticed many plants of *Pteris cristata* major growing luxuriantly, some of the plants being nearly 4 feet in diameter and in fine condition. *Adiantum Bausei* was numerous and well grown. In the same house *Salvinia natans*, a miniature Fern-like aquatic, was spreading rapidly in a shallow pan of water.

The tuberous Begonias in one of the houses were handsome, and some unnamed seedlings were amongst the best, being profuse bloomers with flowers of large size. *Begonia Martiana*, an upright-growing form with small rose-coloured flowers, was conspicuous and is valuable for conservatory decoration. *Souvenir de Louis Van Houtte* possessed the same character, differing only in having bright red flowers. This is a grand companion plant, and undoubtedly a seedling from the above. Amongst varieties with bright red flowers *James McIntosh* was striking. *Souvenir de Chiswick* was also very fine. *Henry Webb* had large bright scarlet flowers freely produced. *Walter Dwyer*, a good variety with deep rose flowers; *Queenie*, a beautiful rose colour and deeper than *Nellie May*; *Pearcei Superba*, the deepest and brightest of yellows; *Chiswick Yellow* was also free and good. Dr. Hogg was a remarkably strong grower, having large flowers of rich dark colour. *Rosea Grandiflora*, good. *Nelly Barron*, a beautiful dwarf free-flowering variety. *Chiswick White* was by far the best white. *Sunshine*, buff yellow, very good.

The Zonal Pelargoniums were next noticed, the best rose-coloured semi-doubles being *Sylvia*, *Urania*, and *Zelica*. *Circe* and *Guide* were best amongst the crimsons, both being dwarf and compact, the last-named having flowers after the style of *Jewel*. *Charles Darwin* was striking with plum-coloured flowers, having a scarlet-shaded centre. Amongst scarlets *Madame Plaisançon* was grand, but *Delobel* was a little brighter in colour. The best three salmon-coloured varieties were *Pallas*, *La Constitution*, and *Dr. Jacoby*. *Psyche* and *Bridal Bouquet* were both good whites, but an unnamed variety was much better than either, having a finer truss.

The house of single Zonal Pelargoniums was brilliant and imposing, all the different shades of colour being arranged together, which rendered comparison much easier; the best rich crimsons being *Dr. Orton* (Pearson), a dwarf variety with a splendid truss. *Henry Jacoby*, by the same raiser, has been previously noted in these pages. *Charles Schwind*, *Charles Smith*, and *Rev. S. H. Stanhope* were all good but much alike, the first-named being the darkest. *Malcolm* (George), is a dwarf and bright variety. *Plaacci* (Pearson), light magenta suffused with scarlet, a fine flower and truss. *Hettie* (Pearson), light purple magenta, very good. *Trovatore*, by the same raiser, a dwarf and grand variety. *Correggio* and *Ouida*, the former having flowers of a crimson purple suffused with orange scarlet, the latter being somewhat similar, but has a small white eye. The best scarlets were the *Rev. S. Hey*, *Havelock*, *Mrs. Storey*, *Beatrix*, *Burns*, and *Niobe* (Pearson's). Amongst purple-shaded Pinks *Pearson's*

varieties again figured as the best, the most noteworthy being *Mrs. Ward*, very fine; *Lady Bailey*, *Olive Carre*, *Titian*, *Mary Mabel*; the best of the rose-coloured section being *Lady Byron*, *Mrs. Wright*, *Mrs. Leavers* (Pearson's), *Madonna* (Deuny's), these were all good, but the first-named was most conspicuous; the finest salmons being *Fanny Catlin* (Catlin), *Sophie Birchin*, and *Lizard* (Pearson's); the best white was *Jeanne d'Arc* (Lemoine), the truss was large and the flowers pure white.

In the grounds the Phloxes were magnificent, and intending planters will find the following good and desirable varieties—*Souvenir de Berryer*, bright red; *lilacina*, reddish crimson; *Jane Wilson*, dwarf white with pink eye, good; *Countess Rosslyn*, large truss; *coccinea*, brightest of all, dwarf, flowers dark crimson; *Menotti*, dwarf, lilac and white; *Lothair*, rose salmon, good; *Ada Louise*, dwarf, light with a pink eye; *Souvenir de Nancy*, rosy purple, white centre; *Madame Alger*, crimson, fine flower and truss, best of all; *Venus*, dwarf white; *Virgo Marie*, good white. *Begonia ascotensis* was conspicuous in a bed on the shady side of a wall, not only growing strongly but flowering profusely. A bed of *Salvia patens* was also very beautiful. *Lobelia atrosanguinea* made a bright and beautiful bed. *Plumbago capensis* was flowering freely, bedded out, also *Cassia corymbosa*, which looked well with its pretty yellow flowers. I noticed in one of the borders a very fine *Tropæolum* named *Bedfont Rival*, one of the best I have seen for bedding, being a close compact-growing variety, and its flowers were freely produced. A bed of *Verbena Fireball* was very noteworthy, the colour of the flower being bright scarlet. The growth is compact, and in consequence would require but little pegging down. The border of Dahlias were grand. The single kinds were largely grown.

In concluding these notes I must congratulate Mr. Barron upon his good management in rendering the gardens not only attractive but instructive. Unfortunately he was from home the day of my visit, but his able foreman Mr. Thomson conducted me round the gardens, and I wish to thank him for his attention to—A COUNTRYMAN.

REVIEW OF BOOK.

A Pocket Guide to British Ferns. By MARIAN S. RIDLEY. London: David Bogue, 3, St. Martin's Place, Trafalgar Square.

FOR all who are commencing the study of British Ferns this little volume is well adapted, as it gives a clear outline of the principal structural peculiarities of the order, and tabulated descriptions of the species found in these islands. It is also marked by very commendable accuracy both in nomenclature and the general information supplied, which, unfortunately, is wanting in many elementary works upon this and allied subjects.

The intention of the authoress is to supply a want she and others have often experienced, and which is thus described in the preface—"In my own studies I have met with this difficulty—viz., to gather from the published volumes on Ferns what the decided special features or characters are of each genus and species. For while writers mention many peculiarities in detail, some of greater and others of lesser importance, those alone which precisely mark the distinctions are either not sufficiently noted, or so mingled with features of a general kind that the mind fails to grasp the essentials." To aid others in overcoming this difficulty she has reduced the chief characters of every species to a tabular form under the heads of Generic and Specific Characters, Rhizome, Stipes, Frond, Venation, &c., giving the distinguishing features under each. Unquestionably a young botanist would experience little difficulty in determining the name of a specimen by carefully comparing it with the descriptions, and he would by that means also obtain an accurate elementary knowledge of the principal peculiarities of British Ferns.



KITCHEN GARDEN.

DELAY no longer affording the needful protection to Globe Artichokes. We prefer to take out the soil around the crowns about 9 inches in width and 6 inches in depth, and after giving a dusting of quicklime fill up with ashes, covering the crowns about 3 inches deep, with 6-inch mulching of stable litter on the surface. Give a dressing of manure around Rhubarb plants, and have the soil between the stools pointed over, and a little placed over the crowns so as to have a neat appearance. In order to encourage a luxuriant growth of the Rhubarb the soil may be taken out between the rows as deep as the roots will allow without disturbing them too much, and the

hollow so formed may be filled with decayed refuse or partially decayed manure, the material being brought over the crowns, clearing it from them in early spring, and by watering with liquid manure or guano water (2 ozs. to a gallon of water) after the growth is free the produce will be much finer. Fresh plantations of this and Seakale should now be provided for by trenching the ground as deeply as the good soil admits, loosening that not turned up with a pick, and working in as the trenching proceeds a liberal quantity of vegetable refuse and manure. The soil for Rhubarb, Seakale, and Asparagus can hardly be too rich and friable. Seakale prefers a soil somewhat sandy, as also does Asparagus. The preparation of the ground for these should be proceeded with as opportunity offers, and if the weather be open planting Rhubarb may be continued, selecting divisions from the old plants with one or more crowns. Plant them level with crown, and firm the soil well about them, covering the crowns with vegetable refuse and partially decayed manure. The distance between the rows should be 6 feet, and between the divisions 4 feet. Johnston's St. Martin's is unquestionably the best early variety either for outdoor or forcing, and for the latter purpose the plants need only be 4 feet from row to row and 3 feet apart in the row. For general and market purposes Victoria is pre-eminent, and is good for forcing, and for a combination of size with quality Stott's Monarch has no rival.

Seakale may also be planted now, the healthy portions of the roots detached from plants lifted for forcing in lengths of from 4 to 6 inches making capital sets. Plant them 1 foot asunder in rows 18 inches apart, making the soil firm about them. One or two-year-old plants from seed are also good for forming new plantations, the plants having the crown bud removed with a knife before planting or in spring, so as to prevent seeding. Asparagus should not be planted until late March or early April. Complete the dressing of the permanent beds of these with as little delay as possible.

Jerusalem Artichokes keep best in the ground, also Parsnips and Horseradish, but a sufficient quantity of roots of those should be lifted and stored in damp sand in the root-house or other place, so that the supply be unbroken by severe weather. Similar remarks apply to Celery, which should either be lifted and stored in sand safe from frost, or be covered with a sufficient depth of litter or bracken. Winter Radishes and Rampion are also best from the ground, but they must be protected with litter or bracken to allow of their being taken up as required; but a supply stored in damp sand will keep in good condition some time, and is preferable to daily disturbing them in the open ground in severe weather.

Soils that have long been under vegetable crops and heavily manured will be improved by the addition of fresh loam and a good liming, deferring the manuring until spring or before putting in the crops, or, if this be inconvenient or undesirable, it may be employed during summer as a mulch with great benefit. Heavy soils will be improved by the employment of charred refuse, burned clay, ashes, leaf soil, and liberal manuring, also by a dressing of lime, and should for the winter be thrown up as roughly as possible. Light soils may have a dressing of clay or marl, and after exposure to frost dug in. Deep digging or trenching should be practised frequently where the depth of soil permits, but much of the bad soil must not be brought to the surface.

Forcing Department.—Where large supplies of French Beans are required a suitable structure should be devoted solely to them. Where they can be sown or planted out under these conditions they will yield more satisfactory results than when grown in pots, which are often from necessity placed in structures unfavourable as regards position and temperature to their giving satisfactory results. It is essential that these have a position near the glass and a temperature of from 55° to 65° artificially. Single rows may be had in front of Pine beds, forming a border of rich light compost about 1 foot wide and 9 or 10 inches deep, which will yield abundantly if properly watered and a little guano mixed with the water occasionally. Osborn's Forcing is one of the best, but Canadian Wonder gives finer pods, and may be grown where there is plenty of room. Sowings should be made at intervals according to the requirements. Advance successional crops of Asparagus, Seakale, and Rhubarb according to

the demand; and prepare materials for making fresh beds for Asparagus for succeeding supplies. Make beds of leaves and manure mixed, one part stable litter to three or four of leaves, in pits or frames for Potatoes, Radishes, and Carrots, placing about 8 inches depth of rich fine soil for the Potatoes over the bed, putting out the sets when sufficiently sprouted in rows of 18 inches apart, and the sets 15 inches asunder, inserting them about 4 inches deep. Myatt's Prolific and Veitch's Ashleaf are excellent early varieties.

For Radishes and Carrots 4 to 6 inches depth of soil is sufficient, and when warmed through sow the seeds of these in alternate rows, making shallow drills about 4 inches apart, and as soon as the seeds germinate air must be admitted freely. Early Scarlet Forcing Turnip and Early White Forcing Turnip, with French Breakfast and Wood's Frame, are most suitable, and of Carrots French Forcing and Early Nantes. Place more sets of Potatoes in boxes in leaf soil in a house where there is a temperature of 55° preparatory to planting-out the sets in beds. Supply tepid water to Seakale and Rhubarb in the Mushroom house when growth has commenced, also to Chicory, introducing fresh roots of the latter at intervals proportionate to the demand. Introduce roots of Mint in boxes or pots to a house with a gentle heat, also roots of Tarragon. Lettuces and Endive in pits where heat is applied must have regular attention in ventilation.

Lettuce for spring use in cold pits or frames should be examined occasionally, stirring the soil about the plants and dusting with quicklime or dry wood ashes. Similar remarks apply to Cauliflowers under handlights or in frames, ventilating freely when the weather is favourable; but in severe weather neither Lettuces or Cauliflowers will suffer if the coverings are left on for several days. Avoid as much as possible keeping the lights over the plants when the sun is powerful.

FRUIT HOUSES.

Peaches and Nectarines.—The earliest house, having been closed and prepared for forcing as advised in former calendars, may now have fire heat applied, but the temperature should not exceed 50° by day artificially, nor 40° to 45° at night, until the flower buds are showing colour, and when they are expanding the temperature must be raised 5°, or 45° to 50° at night, and 50° to 55° by day, the lower figures being most suitable when the weather is severe. A somewhat dry atmosphere is desirable after the anthers appear. Syringing as regards the trees must then cease; but when the weather is bright damping available surfaces in the morning and early afternoon will be useful in assisting the development of the blossoms, but if fermenting materials are employed that will seldom be necessary.

Figs.—Trees in pots required to give ripe fruit at the end of April or early in May must now be started, the pots being placed on pedestals of brickwork in a pit, and the pit filled with fermenting leaves and litter brought up about the pots so as to afford a genial temperature around them of 65° to 75°. Frequent applications of water at 70° will, if the soil in the pots has been allowed to become dry, be necessary to render the soil thoroughly moist. The trees and available surfaces in the house must be syringed twice daily when the weather is bright; but in dull weather the moisture arising from the fermenting materials will suffice. A temperature of 50° at night and 55° in the daytime artificially is sufficient to commence with, allowing an advance to 65° from sun heat, above which ventilate freely.

Vines.—Disbudding will soon be necessary in the earliest house started in November, and should be attended to as soon as the best breaks can be distinguished, doing it gradually, and leaving a number of growths showing fruit in excess of those that will be required for the crop to induce active root-action. No more growths, however, must be reserved than can have full space for development. The temperature can be gradually increased so as to have it 60° to 65° at night when the Vines are in leaf, with 5° more by day, and 10° to 15° from sun heat. With fermenting materials in the house the need of syringing will be reduced. Lose no opportunity of admitting air, avoiding cold draughts or sudden depressions of temperature.

Strawberries in Pots.—Where it is intended to have fruit ripe by March, plants of some approved early variety should at once be introduced, if not already done, to a house with a night temperature of 50°, and advancing with sun heat to 60° or 65°. A vinery or Peach

house being started will be a suitable place, assigning them light airy positions near the glass. Never allow the soil to become very dry, and avoid making it too wet. A sprinkling overhead will be of service until the flowers expand, when it should be discontinued. Keep a strict look-out for aphides, and fumigate upon its first appearance.

PLANT HOUSES.

Stove.—Summer-flowering plants will now be at rest, and, having the wood in a well-matured condition, advantage should be taken of this to eradicate those most troublesome pests, mealy bug and scale. These insects, when fairly established in plant houses where heat is constantly employed, can only be checked by great labour and determined perseverance. In attempting to destroy mealy bug no half measures are of any avail, and, the plants now being at rest and having little soft growth, an insecticide may be used at a strength more likely to effect a clearance without injury to the plants. *Franciscas*, *Gardenias*, *Clerodendrons*, *Dipladenias*, *Ixoras*, *Rondeletias*, *Jasminums*, *Medinillas*, and *Tabernæmontanas* should be dipped or syringed over a vessel large enough to catch the liquid from the plants laid over it, turning the plants on their sides so as to reach every part, and after the liquid has dried on the plants they may be syringed with water at 140° to 160°. Most insecticides at a strength of 4 to 6 ozs. to the gallon of water at 90° to 120° will effect their purpose, such as Gishurst compound, Fowler's insecticide, and nicotine soap. Roof climbers, particularly *Stephanotis*, will need to be taken down, dipped or washed, so that the insecticide reaches every part. Clear out all fermenting or piling material, the walls being pointed and limewashed two or three times, and the woodwork dressed with turpentine and afterwards painted. With a determination to succeed in destroying the pests their extirpation is only a matter of labour and time.

Orchids.—This being the most inactive period in the growth of these plants no more fire heat should be used than is necessary to keep the temperature about 65° by day, and 60°, or 2° or 3° less, at night for the East India house, the Mexican house 57° to 60° by day and 50° by night, the cool house 50° by day and 45° by night, allowing a few degrees rise with sun heat. Very little ventilation will be required now, and though the moisture is at a minimum attention must be given to the atmosphere, water being poured over the benches and paths every morning. The sphagnum and roots growing outside the pots and baskets will require frequent damping, particularly such plants as *Aerides*, *Saccolabiums*, *Vandas*, and *Phalænopses*. Although *Cattleyas* and *Lælias* are rooting freely they require very little water at the roots; the peat in which they are grown should be of a character to allow it to pass away freely. *Odontoglossums* must never be allowed to become dry; they delight in a cool damp atmosphere, syringing lightly overhead on fine mornings, guarding against drip lodging in the young shoots. Sponge the glass inside the house at least once a week, so that the plants have as much light as possible. Adopt precautionary measures to prevent woodlice and cockroaches eating the flowering spikes, which in some of the summer-flowering plants will now be showing. *Cypripediums* and *Cymbidiums* require a good supply of water at their roots. *Dendrobiums* required to be retarded flowering until May should be placed in a greenhouse temperature, very little water, if any, being required until they begin growing, when they must be removed into a warm house to prevent a stunted growth. Procure a good supply of peat and sphagnum, picking out all rubbish, and if laid on a damp floor the sphagnum may be kept in a growing state for several weeks, it being important that it be used as fresh as possible.

THE BEE-KEEPER.

DOME-TOPPED STRAW HIVES.

I HAVE noticed these two or three winters how well the cottagers' bees endured the winter about here in small dome-topped straw hives in comparison with my bees, which have been well fed, but are in large flat-top straw hives. The cottagers about here do not understand feeding bees for the winter. Some

give them dry sugar, others beer and sugar in small quantities. A cottager had his first swarm from one of the above-mentioned hives the last day in May. They were placed in a Pettigrew hive and have done well, as the honey season here was in the early part of the summer. My bees did not swarm until the latter part of June, and were not able to gather sufficient honey to keep them through the winter.

I would like to know if there is a better shaped hive for a beginner than the dome-topped one. In an unsuitable district the first necessity is to keep the bees alive through the winter; if the beginner can do that he would soon gain knowledge by experience. His swarms he could hive in improved hives of his own make. In reading this year a bee society's schedule I noticed what little encouragement they gave for the improvement of straw hives; there was only one class for them. Are there any straw hiveists left? If so, I think bee societies ought to assist them as much as they encourage others.—YORKSHIRE.

BEE-FARMING.

THROUGH life the question of bee-farming has often been before me, and in my younger days I was often tempted to become wholly a bee-farmer. Within the last few years I have been more than once asked to consider the desirability of taking the lead in a projected enterprise to farm bees to a large extent on a wide space of country. About ten days ago a gentleman urged the consideration of the subject, and intimated his willingness to invest largely in such an enterprise. Lately the subject has been partially discussed by Mr. Raitt in this Journal in answer to the letter of a gentleman who wanted to know how £300 a year could be made by bee-keeping. Mr. Raitt fairly and honestly answered the letter. As doubtless in future the subject of bee-farming will be considered by many as a profitable investment, I will now endeavour to convey to the readers of the *Journal of Horticulture* my thoughts upon the subject. In doing this it will be necessary to discuss the subject fully.

If I had in early life adopted bee-keeping as an occupation and farmed bees extensively, I am of opinion that I should have made far more money than I have by gardening; and, moreover, I believe that if I had begun bee-farming when I began the nursery business twenty-two years ago it would have been better for me financially, but through life I have not been guided merely by the love of money.

In coming to discuss the subject of bee-farming as an investment we shall notice the *pros* and *cons*—the encouragements and discouragements connected with it. Taking an average of years—that is to say, good and bad seasons together, the income from bees well managed in a good locality is about £2 per stock hive per annum. I wish it to be borne in mind that this £2 per hive represents income, not profit, for those who made it are not bee-farmers in the strict sense of the word, but cottagers who earn their living by other occupations and attend to their bees after their daily occupations. In managing my bees while I was a nurseryman my expenses amounted to about 10s. per stock hive. This 10s. per hive was spent in feeding, rent, and carriage, for many of my hives were kept in gardens at a distance from home. As there are great differences of pasture and district and great differences in the modes of management, there will be differences of opinion as to what may be reckoned as a fair average income from bee-farming. Many of my youthful companions and friends, after long years of successful bee-keeping, considered that £2 per hive is a fair average yield in their locality. As honey was sold fifty years ago at 1s. per pound, and a similar price is realised now, the results may be stated differently—viz., 40 lbs. of honey per hive, or 40s. worth of honeycomb. Now let us suppose that £100 income is an approximate income from fifty stock hives, and that an expert bee-keeper could manage three hundred hives in one garden, or two hundred hives separated in lots of twenty hives placed in several gardens a mile or two apart. Hives would thus have a wider extent of pasturage and would succeed better than if crowded into a single garden, thus overstocking a locality. In the midst of large orchards, white Clover fields, and good heather, one hundred strong hives standing together would increase in weight fast in honey weather, but we dare not say that one hundred more hives would not overstock the pasture. We think that two hundred hives separated into lots of twenty or thirty hives, and placed a mile or two apart, would be the better way of obtaining most honey out of a given district, and that one clever bee-keeper could manage all.

The cost of two hundred good hives at 30s. each would be £300, and for empty hives and beards and other necessary bee-furniture about £100 more. Thus it will be seen that to commence a bee farm of two hundred hives an outlay of about £400 would be required; and that the average income of such a farm in a good

honey district under skilful culture and active management would be about £400 per annum. What would the expenses per annum amount to?

Rent, 2s. per hive, odd	£25
Carriage of hives	5
Bee-keepers' wages—six months	60
Feeding, 4s. per hive	40
Sundries and assistance	20
Interest on outlay of capital	20
Deterioration of hives and furniture	10
Cover for hives	7
	£187

Thus we see that according to the above estimates the profit would be only £213, or rather more than £1 per hive. The estimates of expenses and income is made to the best of my judgment, taking of course one year with another. In contemplating a commencement in bee-farming it is well to look every difficulty fairly and fully in the face. The estimates are made on the supposition that the bee-farmer pays for every item of expense, that he does nothing at all but balance his books at the end of the harvest. If any bee-farmer does his own work the expenses or wages of a manager (£60) would be saved annually, and if the owner of the hives had a garden of his own in the midst of good pasture, part of the expenses of rent would be saved. Mr. Raitt has wisely suggested that persons ignorant of bee-keeping and wishful to make a commencement on a large scale should begin in a small way and continue managing a few hives till they well understand the art and practice of bee-keeping. Those who can afford to serve an apprenticeship of six months duration to a successful man in a large apiary should do so before they make a large venture. An active man would learn more in six months in a large apiary well managed by a competent teacher than he would learn in six years of self-effort and experience in his own garden. Far more can be seen in a garden of fifty hives than in one of five hives, and experienced men have short and easy ways of doing work.

In choosing a district for bee-farming the pasture should be considered. Honey flowers should abound. Fruit trees' blossom in April and May yield much excellent honey. White Clover, field Beans and field Mustard, Sycamore and Lime trees' blossom in June and July yield much honey. Heather in August comes in last. An abundance of these plants makes any district in Great Britain and Ireland a good one for bee-keeping; and it is advantageous for the sale of honey and honeycomb to be near a large town or wealthy people, but this should not be considered a *sine qua non*.

If a bee-farmer has to depend wholly or almost wholly upon a servant managing a large apiary, great difficulty will be found in finding an able and trustworthy man. There are competent bee-keepers now-a-days, and every year many men are becoming expert in bee-keeping, but it is difficult to find such open to engage themselves to others for this work. In all such enterprises far more than I can here mention depends on the ability and faithfulness of the manager. Far more than half the losses and failures in bee-keeping are caused by incompetency and inattention. If I were engaging a man to manage my bees I would offer a fair salary and 10 per cent. bonus on all sales. He would thus have an interest in the concern. I believe that good men are cheap at any price, and incompetent men not worth much anywhere.

One point in bee-keeping or bee-farming I have not noticed in this letter—viz., that of selling stocks and swarms. But this point should not be forgotten. In large apiaries stocks and swarms can be bought, and in bad seasons it is advantageous to sell as many as possible. By selling ten or twenty stocks in such seasons the expense of feeding is met, and thus there is less loss. I know a gentleman in Lancashire who keeps bees for sale, not for honey. He deals in Ligurians, and states that he sells £200 worth annually. If his statements are correct the £200 come from bee-fanciers, not from bee-farmers. An outlay of capital on expensive bees and hives are not on the lines of economical and profitable management.—A. PETTIGREW, Bowden.

P.S.—In my estimate of salary for a bee-keeper I have been liberal in allowing £60 for six months' service; but it should be remembered as bees require no attention, or very little indeed from the beginning of October till April—six months, he would have to seek other work during the winter months.—A. P.

TRADE CATALOGUES RECEIVED.

James Walker, High Street, Skipton.—*Catalogue of Seeds.*

Putz & Roes, Erfurt, Prussia (Otto Putz, Great Russell Street, London).—*Annual Trade Seed List.*

William Etherington, Swanscombe, Kent.—*List of Chrysanthemums.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Disqualifying Chrysanthemums (C. F.).—The two flowers received under the name of "Ferventa" we think are *Sœur Melanie*, which belongs to the hybrid section, and is most valuable for decorative purposes. It is not a Pompon, and there is no occasion for exhibiting doubtful varieties in small collections.

Moss on Lawn (J. Freeman).—Your lawn probably requires draining. As you have tried wood ashes and they have failed we can only advise you to comb as much of the moss from the lawn as possible with a fine-toothed rake, and then give it a dressing of lime at the rate of 2 pecks, or nearly so, to the rod of 30½ square yards, and sprinkle over it some fresh soil. Give also a dressing of soot in the spring, on a rainy day if possible, making the surface quite black. If these measures fail, then we should dig up the ground, drain it, and sow thickly a suitable mixture of fine lawn seeds.

Grubs in Cyclamen (E. C.).—Your plant has been attacked by the grub or larva of a small beetle, one of the weevils, apparently that of the grooved weevil (*Otiorhynchus sulcatus*), which is partial to bulbous and succulent plants. This feeds during the winter and spring, the beetle coming out in April or May according to the season, when it deposits eggs, and should be looked for around the stems of plants where it has already done damage. It is seldom that a plant which has been badly attacked by the grub can recover, but some have advised giving clear lime water to destroy the grubs while young; but this is only of benefit before they have buried themselves in the combs.

Pear Tree Unhealthy (F. J.).—The branches dying suggests that the roots of the tree are in wet or ungenial soil, and the wood does not ripen. If this is so you might probably improve the tree by lifting and placing the roots in fresh loam, adding at the same time some calcareous matter, such as old mortar rubbish. A mixture of wood ashes would also be beneficial. If we have not indicated the cause of the unsatisfactory state of the tree—that is, if it is apparently in good soil, and still the branches die, we should uproot it and plant a young tree, as it is never wise to graft on a diseased stock. Train the Vine rod on a level with the wires of the roof; in fact, secure it to them about 6 inches from the front glass, or where convenient.

Sowing Lapageria Seed (G. S. N.).—Sow the seeds as soon as they are gathered from the plant in a light compost, the greater part being peat, and place the pots in a temperature of 60° to 65°, keeping the soil regularly moist. Many seedlings have been raised, the result of a cross between the red and white varieties, but the majority of them have proved worthless. Sow the Palm seeds in loamy soil, about half covering them, placing on the surface a layer of moss, which keep moist, in a temperature of 65° to 70°.

Mushrooms in Cucumber House (Lynn).—As you "know the spawn was good" we suspect the soil of the bed was unsuitable by being either too light, too wet, or too dry, or the heat of the bed was not suitable. On this point you give us no information, neither do you mention the temperature of the house. The bed should be about 70° and the house about 60°, and if the bed is covered with hay it will not be necessary to cover the glass. Regularity of moisture in the bed is indispensable. You had better remove the soil and make a bed of horse droppings; a layer 6 inches thick will do under your circumstances. This bed must neither be wet nor dry, but of a healthy medium which is easily attainable. If the spawn is inserted in this, and a temperature of 75° is maintained for a fortnight, good spawn will "run," and a heat of 70° to 65° will then suffice. The soil removed may be spread on the bed if it is good, made moderately moist and very firm, the whole being covered with hay. Perhaps, however, your failure is not so complete as you think, and you had better wait a week longer before you disturb the bed.

Species and Genera (Northampton).—The question "Are all Palms or all Orchids of one species?" is obviously absurd, and scarcely requires an answer. The plants known as Palms and Orchids form two large families or natural orders, each including a great number of species arranged under their respective genera. A species is ordinarily considered as containing all the individuals descended from one original plant or animal, and therefore agreeing among themselves in certain characters, which also distinguish them from other similar groups of individuals. But in the course of time the variations are so great that it often becomes difficult to assign the exact limits to a species, as the characters seem to merge gradually into each other, thus rendering the definition to some extent arbitrary. A genus is simply a group of species agreeing in their leading characters, genera being grouped under the terms tribes, sub-orders, and orders. Thus, to give an example from one of the families named by you, the Palms, *Chamaerops Fortunei* is a species; *Chamaerops* is a genus included by some botanists in the tribe Coryphæ, and this in the natural order Palmæ. A variety is a sub-division of a species including individuals that agree in some unimportant characters, such as the colour of the flowers, which are not considered sufficient to entitle them to specific rank.

Mealy Bug on Coleuses (Park Hill).—We know of no remedy for extirpating this pest without at the same time staining the foliage, except carefully washing the plants with pure water, using a sponge and pointed stick or an old toothbrush for dislodging the insects. A quicker way of destroying them would probably be to wash them or syringe them forcibly with a warm solution of softsoap, made by dissolving one or two ounces of softsoap in a

gallon of water, and adding thereto a wineglassful of paraffin oil. The oil will mix with the soapsuds, but not with pure water, and if the solution is applied warm, say at a temperature of about 120°, it will not stain the leaves nearly so much as if it is applied cold. The plants should be laid on their sides over a vessel to catch the solution, or on a mat and turned round, so that they can be syringed on all sides effectively.

Exhibiting Plants at South Kensington (F. R.).—If you write to Mr. Barron, Royal Horticultural Society's Gardens, Chiswick, London, W., and state your case he will give you the necessary instructions for carrying out your project; but we doubt if you send an unnamed plant to the Floral Committee that they will either name it for you or grant it a certificate. If your Fern is really new you can name it yourself, and if it is distinct and so good in the opinion of the Floral Committee as to merit a certificate they will grant one if you place a plant before them. If you send a spray to us securely packed, so as to arrive in good condition, we shall perhaps be able to inform you whether your plant is new or not. You can either adopt this course or write to Mr. Barron, as you prefer.

Coiling Vines (F. C.).—If you have placed the canes in the pots properly, only one or two buds being above the soil, they will be quite safe in your orchard house, provided the soil is kept healthily moist—that is, not saturated—until the spring, when they will root more quickly if plunged then in slight bottom heat. We should not plunge them in heat now, as you do not appear to have the requisite conveniences for growing them if started very early. It is immaterial whether the buds are removed or not on the portion of cane in the soil, therefore do not disturb the coils.

Pines (Idem).—Pines cannot be grown successfully unless you can insure a night temperature of 60° as a minimum. Leaves and manure form an excellent plunging material. Your form of plunging will do provided the pots are warm; if they are not, sink them deeper. The suckers will not grow in the frame unless it is heated. It is not possible for us to determine whether the piping you name will be sufficient for heating the compartment for Pines without knowing the height of the structure. A flow and return 4-inch pipe the length of a pit 8 feet wide and 5 or 6 feet deep, 3 or 4 feet being occupied with plunging material, would suffice; but the term "orchard house" implies that the structure is lofty, and probably two rows of pipes round the house, if it is a span-roof, would be requisite. If you had sent a clearly drawn plan showing the form and dimensions of the compartment we could have given you a definite reply. It appears to us that you have acted prematurely in procuring plants before you have provided the means for growing them.

Failure of Chinese Primulas (Jean).—The most frequent collapse of Primulas results from potting too high. They ought never to require supporting, as in this case the exposed stems are liable to canker, and the plants to fail generally when in full bloom. In your case this is not the cause of failure, but, judging from the facts as stated by you, more probably the decay of the plants is owing to late potting, the subsequent treatment being unfavourable. You omitted mentioning if fire heat was employed in the lateinery where the plants were disposed. Primulas repotted late in October and watered at the same time would require to be placed where a little dry heat could be given, and receive no shade. Given opposite treatment we should expect many to decay. Our latest batch received their final shift about the middle of September, and even at that date we did not water the plants for at least a week, the precaution having been taken to have each and all thoroughly moist prior to repotting. The frame in which they were placed was kept somewhat close till they recovered from the slight check they received. To apply water immediately after repotting, especially if no heat be given, would doubtless ruin many plants. The first signs of injury would be a change in the colour of foliage, followed by flagging on a bright sunny day. On the other hand, if you allow the ball of a newly potted plant to become excessively dry, flagging would be the first sign. In this case the young roots will perish, and a thorough soaking given when too late would also frequently end disastrously. Plants, however, will often recover from the effects of extreme dryness at the roots, but seldom from overwatering. An examination of your failure ought to enlighten you on the subject.

Various (Inquirer).—The growths of Clematis Jackmanii which have flowered should be removed down to the prominent buds, which will be perceived on the lower parts of the shoots. Some of these buds may have commenced growing in consequence of the extreme mildness of the weather, and possibly later frosts may destroy them; still, we should leave them, as if they are cut down the lower buds will start in the spring. To cut off the advancing buds now might cause the others also to become too forward, and they had better remain dormant at this season. If the insecticide is used in a warm state it will leave little or no sediment, and consequently it will not be needful to wash it off with plain water. It may be safely applied to the plants you name, but leaves that are "blackened by aphides" ought to be cleansed with a sponge. Cyclamens thrive best in a house in which the night temperature ranges between 50° to 60°. Cut down the Chrysanthemum and keep the plants in a frame or greenhouse; either now or in spring take rooted suckers from the plants and pot them singly in small pots, or cuttings may be struck in a warm house or frame in the spring. When the young plants are established the old ones may be thrown away or planted in the garden. Not knowing the condition of your Rose we are unable to inform you how it should be pruned, but as a rule close pruning of the variety is not advisable; neither is it possible for anyone to advise on repotting without knowing the size of plant and the pot it is growing in. We can only say that this is not a good time for repotting Roses in the hands of inexperienced amateurs.

Gas Lime for Gardens (Inquirer).—It is injurious to crops when applied in an excessive quantity, and especially when it is used shortly before sowing and planting. A quarter of a pound, or nearly so, to a square yard may be dug into the ground now, if well mixed with it to a foot in depth, with safety, and this would be useful in extirpating grubs and wireworms; but in the spring half that quantity, or less, according to the nearness of the crops, would suffice. For lightening strong land a heavy dressing of ordinary lime say at the rate of from fifty to sixty bushels per acre, would be safer and more effectual than gas lime. You ought to add ashes, sweepings from roads, vegetable refuse, and gritty matter of any kind, as liberally as possible; also in digging throw the ground up in ridges, and break these up with forks or picks two or three times during the winter when the ground is frozen. You will thus in time ameliorate the soil and render it more suitable for Potatoes and other crops. Mr. Taylor finds no late Potato so suitable for his strong soil as the Champion. Garden refuse of all kinds, even weeds, if placed in a heap with fresh lime and covered with soil, will decay and afford a valuable dressing for your land; and if a portion of this compost, with a sprinkling of soot, is placed in the drills when the Potatoes are planted, the crop will be heavier, and the produce better in quality. You can only ascertain for yourself the precise varieties that are the best adapted for your particular soil, and if the ground is wet as well as

heavy you will find it advantageous to grow the Potatoes on ridges—that is, place the tubers on the surface and cover them with soil obtained from between the rows, which should be wider apart than usual.

Names of Fruits.—We have many times notified that only six varieties of fruits can be named at once; still large packages reach us, the contents of which cannot be examined. Some fruits are not named because the sender's name does not accompany them, and we cannot always determine to whom the respective parcels belong, even by the aid of letters received by post. Pears, we have previously intimated, ought to be ripe or approaching ripeness when sent, or a number of them cannot be identified. All packages must be carriage paid; unpaid parcels are sent every week that are not taken in. The fee for naming fruit to non-subscribers is 5s. It is important that these conditions be attended to for preventing disappointment. (Edward Collins).—We are sorry we cannot name your Apple. (A. Barker).—Pears—1, Arlequin musqué; 2, rotten; 3, not known. Apples—1, Cox's Orange Pippin; 2, Wormsley Pippin; 3, Gloria Mundi; 4, Somerset Lasting; 5, Hollandbury; 6, Striped Holland Pippin; 7, Bedfordshire Foundling; 8, not known. (James Searle).—1, Flemish Bonchrétien; 2, Leon Leclerc de Laval; 3, Beurré d'Arenberg; 4, Winter Franc Real; 5, Forelle; 6, Beurré Sterckmans. (G. S., Sandbeck Park).—1, Gloria Mundi; 2, ditto; 3, Minchall Crab; 4, not known. (A. Death).—1, Bedfordshire Foundling; 2, not known; 3, Yorkshire Greening; 4, Cox's Pomona; 5, Rosemary Russet; 6, Cox's Orange Pippin. (W. S. Mainsforth).—We do not know the names of either of the two Pears. (G. C. S.).—We suspect the Apples you have sent are purely local varieties, of which we do not know the name.

Names of Plants (W. E. B.).—Zygopetalum Mackayi. (Stifford).—1, Begonia Ingrami; 2, B. foliosa; 3, B. natalensis; 4, specimen insufficient; 5, B. insignis; 6, Gesnera Donckelaeri. (A Young Gardener).—Your plant is Acacia heterophylla, and requires a greenhouse temperature.

Do Rhododendrons Kill Bees? (M. Thompson).—Mr. Pettigrew says the statement sometimes made that Rhododendron flowers kill bees that work on them is not true. Bees have been kept in Rhododendron nurseries with success. For thirty years his bees have been surrounded with gardens in which Rhododendrons have been growing, and he has never known nor feared the loss of a bee from them.

COVENT GARDEN MARKET.—DECEMBER 7.

OUR market is completely stagnant, arrivals of Canadian fruit seriously affecting prices. Good dessert Pears are in demand.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1 sieve	1 0 to 3 6	Lemons.....	1 case 18 (103)	0 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	0 0 0 0
Cherries.....	1 lb.	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Chestnuts.....	bushel	16 0 0 0	Oranges.....	100	4 0 6 0
Currants, Black..	1 sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
" Red.....	1 sieve	0 0 0 0	Pears, kitchen..	dozen	1 0 1 6
Figs.....	dozen	0 0 0 0	dessert.....	dozen	1 0 3 0
Filberts.....	1 lb.	0 0 0 0	Pine Apples....	1 lb.	1 6 2 0
Cobs.....	100 lb.	75 0 0 0	Strawberries...	per lb.	0 0 0 0
Gooseberries....	1 sieve	0 0 0 0	Walnuts.....	bushel	7 0 8 0
Grapes.....	1 lb.	0 6 4 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	100	1 0 0 0	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	pickling.....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley..... doz.	bunches	3 0 4 0
Brussels Sprouts..	1 sieve	2 0 2 6	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushel	2 6 3 0
Carrots.....	bunch	0 4 0 6	Kidney.....	bushel	3 0 3 6
Capicums.....	100	1 6 2 0	Radishes..... doz.	bunches	1 0 0 0
Canliflowers.....	dozen	1 0 3 6	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsafy.....	bundle	1 0 0 0
Coleworts..... doz.	bunches	2 0 4 0	Scorzonera.....	bundle	1 6 0 0
Cucumbers.....	each	0 6 0 8	Seakale.....	basket	2 0 2 3
Endive.....	dozen	1 0 2 0	Shallots.....	1 lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 0
Garlic.....	1 lb.	0 6 0 0	Tomatoes.....	1 lb.	0 8 1 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



POULTRY AND PIGEON CHRONICLE.

STABLE ACCOMMODATION FOR HORSES.

(Continued from page 508.)

IN the horse boxes to keep the accumulating bedding firm enough to prevent heating, it is requisite to supply a little water once a day with a common water-pot with the rose on, especially round the outside of the box, where the horse does not tread so closely to the division of concrete and boarding. It is also necessary to strew a little dry fine earth over the straw surface daily.

Thus the combined action of the water and earth solidifies the mass of accumulating manure, and effectually prevents fermentation and the escape of any ammoniacal vapour. In the case of the stable to which we have been referring no manure was removed for nine months, and it was only removed then because the dung was required for use on the home farm. In order, however, to ascertain how long the accumulation may be extended without injury or inconvenience, one box was not cleared out until the end of fifteen months, and then only in consequence of some of the manure overlapping the threshold, causing a nuisance on the white brick pathway. We have no evidence to offer as to how long the accumulation may be continued without injury to the horse. In fact, when carried out as we have endeavoured to describe, it is complete in all respects; for the shoeing smith who had shod the horses on the estate for upwards of twenty years informed us, that since the manure had been allowed to accumulate under the animals their feet were in a much better state for shoeing than he had ever seen them at any former period.

It appears very important to inquire, not exactly as to the particular plan or system best adapted for use generally, but that probably each plan would find advocates under the varying circumstances required for stable accommodation. The plan of impervious floors seems admirably adapted for horses in a large town, because the difficulty of obtaining prepared earth would tell against the use of it. The disposal of both liquid and solid excrement is then of the highest importance, in the same way that the sanitary arrangements in towns are requisite for the health of the population, without so much reference to the cost of it. One way, however, to look at the question as it applies to horses is to consider, not only their general health, but the condition of their feet, especially as refers to horses engaged in tramway work and cab horses. These have to travel almost continuously upon the hardest roads, and the necessity of keeping the feet of the horses in an elastic and healthy condition is imperative to prevent serious losses; in fact, the reports of the managers of the tramway and omnibus companies point out the enormous waste of horse power in consequence of the hard stone surfaces they have to travel upon. Horses also frequently suffer in their general health when kept in stables with hard impervious floors, and from these two circumstances alone the average duration of use of these animals is shortened by at least two years. More especially is this the case under the system and circumstances arising from the prevailing style and manner of shoeing the horses it becomes of the highest importance. As securing space for boxes in large establishments would be costly and difficult, it then becomes a question of earth-floored stalls, which may be carried out in most towns by contracting for the supply of prepared earth and the removal of the same after its use and conversion into manure. The saving of straw litter is an important consideration, as at least it would amount to one-half.

The use and advantages of loose boxes with earth floors applies in a forcible manner to all establishments where space and the cost can be afforded, especially as regards hunters, hacks, and carriage horses. But for these the question of shoeing must again be considered; for although the feet will be more elastic and in better condition in consequence of the earth floor, yet it is quite impossible for accidents to be avoided either in hunting or in road-work. When the frog is cut away, as is done in fashionable shoeing, irreparable injury frequently occurs through wounds inflicted by the short spear-like stumps of underwood in the fences and woodlands. Horses on the roads are often thrown on their knees through a stone becoming jammed between the excavated frog and the shoe, whereas in the system of shoeing advocated by Mr. Fleming the defence of the sole of the foot formed by Nature is left perfect, preventing accidents such as

described. This matter is of so much importance that we cannot refrain from quoting Mr. Fleming's observations on the point. He says, "This natural thickness of the sole and frog-horn is an absolutely essential condition for the maintenance of the foot in health and its protection from injury; and in proportion as it is detached by the farrier's knife, so the foot will suffer. Not only does the soled horn play a most important part in protecting the sensitive parts it covers from injury, but the semi-detached flakes it is always throwing off renders great service by acting as so many spring shields when the horse puts his sole on stones or hard unlevel ground, and also by retaining moisture. They are, in fact, a kind of ever-present and natural 'stopping,' which keeps the horn beneath moist and supple; every flake on sole and frog therefore is valuable." In again noticing the loose box with earth floor and its advantages, although the horses' feet will be found in better and more elastic condition, yet they will at certain times require the usual stopping as when standing on impervious floors.

Our third and last system of accumulating manure in the loose box offers all the advantages required in stable reform. The feet of the horses will always be sufficiently moist without the use of stopping, as evidenced by the experience of the shoeing smith before stated. If, therefore, the present style and method of shoeing is persisted in, considerable alterations in stable accommodation and management must be carried out in order to prevent the serious losses to which valuable horses will always be subject without a practical reform is adopted, particularly as regards details of management. We have known farmers who, in the case of accumulation of manure in the loose boxes, have failed in securing a firm footing for the horses in consequence of using too much straw and too little earth and water. In our experience, however, the mass of manure when cleared out has always been found so firm and solid that it could not be removed by a prong in the ordinary way, but was cut into squares for the purpose by the use of a hay-knife. Although the detail of the plans we have proposed are actually more simple and less trouble to the grooms or stable-keepers than any former plan, yet their prejudices and predilections have in many instances proved a bar to any alteration, and in consequence gentlemen have been often induced to yield to their grooms in this respect. While it is the custom to introduce racing horses for use at the age of two or three years old their feet are only growing, or at least not fully developed, we can understand the evil effects produced by the narrow and contracted feet, and can estimate the large number which prematurely break down; or, from the feet being unable to perform their proper office, the legs and feet become subject to splints, side-bones, and ring-bone. Under the present system horses are often ruined before they reach the age of five years, at which time they ought practically to have only just become fully developed. Very few men interested in the welfare of horses will yield to any description from us or others as to the possibility or advantage of change in their horse management, because they have not seen it carried out and experienced the results, and amongst the most prejudiced we must include the shoeing smith or farrier.

WORK ON THE HOME FARM.

Horse Labour.—This will consist of ploughing and sowing Wheat up to the hurdles where sheep have been feeding off Turnips and Rape, but the ploughing and sowing should be done simultaneously, because at this time of year we either have night frosts or rain; in either case if the sowing is delayed after ploughing it never does so well again. In this case we find the one-horse drill which we use exceedingly convenient, because the land can be seeded close to the plough; and at this time of year we drill 3 bushels of seed per acre, for the plant has many enemies to contend with at this season, the larks and pigeons in particular, but rooks also. The rains have been abundant lately, but will not prevent, when not engaged in ploughing and seeding for Wheat, the fallow-ploughing of land for next year's root crops, which may be continued until finished. In case, however, the horses should be unable to work on the land, carting gravel, &c., for road repairs should now be done. At the same time men should be employed on taking off the sides of the private farm roads and filling into carts to be drawn to heaps either for future use in the cattle pens, &c., or otherwise heaped for mixture with manure from the farmyard to be laid out on the pasture or park land, this mixture being especially valuable for all kinds of grass land, particularly after the mixture has been effected and properly turned and decayed in the heap. The advantage of paring off the sides of the farm roads and making out the water tables is great, for much less gravel is required for repairs when the roads are formed so as to throw off the water quickly. Carting earth from the old heaps and placing in the cattle pens and also at the bottom of the fold yards for sheep or young cattle should now be done, and the manure allowed to accumulate thereon. We have always converted 150 cartloads of earth annually in this way, for when earth is placed under the dung it does

not impoverish it, because the earth only absorbs the liquid manure which under ordinary circumstances is usually washed away and often lost entirely. At the same time the cattle yards and pens always lay drier and more comfortable for the animals. The lambing folds now to be formed should have earth at the bottom, and the land should be rather on the incline to prevent the accumulation of water during a heavy rainfall.

Hand Labour.—The flat-lying soils where the Wheat has been sown should be looked over, and any accumulation of water found standing in the water furrows should be let off with the spade to prevent injury to the young Wheat. Men also will be engaged in hedging, banking, also draining if the weather is not too wet, otherwise it had better be delayed until drier weather after Christmas. Paring and forming the outsides of the farm roads will engage some men, because this work can frequently be done by filling the earth into carts at one operation. Men, and women too, may also be employed in pitting the Swedish Turnips in the fields to prevent game and rabbits and wood pigeons attacking the roots; at the same time the roots are preserved in case of severe frosts occurring, or by the depreciation of their feeding value by sprouting greens in the event of a mild winter.

Live Stock.—Since we have done cutting up Clover grass for the horses and cattle the horses have received hay and Carrots or Mangold, about 10 lbs. daily of the roots, for in the event of their being fed on dry fodder only the animals are sure to lose condition. We consider that sudden changes from succulent food to all dry fodder should be avoided for all sorts of stock, but more especially for working animals, either oxen or horses. The horned Somerset and Dorset ewes have now completed the lambing season, at least those kept for early lambs; but those breeds kept as stock on the hill farms of Somerset and Dorset are now just lambing, and they require more care from the shepherd. They require a lambing fold fixed like that used for the down ewes, whereas the early-lambing stock only required a shifting fold on lea ground every night for the purpose of keeping the animals together and under the eye of the shepherd. Some of the Dorset down flocks for making lambs ready for Easter have commenced lambing, and as the ewes are in good condition generally this year and free from lameness than for several years past it is expected that it will prove a successful season. The bullocks intended for sale at the Christmas markets should now be well cared for up to the time of sending them away. We like not only to keep them clean and well littered in the boxes, but they always do better and lie down more when carried with the horse comb. In feeding bullocks, if for Christmas or any other time, we never exceed 4 lbs. of cake and 2 lbs. of bean or barleymeal mixed and strewn over the cut roots. In this way little waste occurs. We advocate a moderate allowance of roots—only 56 lbs. of Mangold and 70 lbs. of Swedes daily, with sweet Oat straw *ad libitum*. We are enabled to show a return of 8s. per week over the cost of food and feeding. In case they had hay instead of straw no return in money would occur, besides which hay-fed animals will often refuse their other food; but when eating straw never, so far as food is concerned, but enjoy uninterrupted good health. Young cattle as stores and also the dairy cows may still be allowed to run on the pastures and parkland, except where flooded, for they not only get a little grass in open weather but they return to the stalls and yards for the night with better health and good appetites for their roots and other food, which may with advantage be pulped and mixed in the troughs with cotton cake meal and Oat straw in chaff. As the earliest Dorset down ewes are now just beginning to lamb, and as with proper care those lambs which fall now will be sold at Easter, both ewes and lambs should be fattened together, for it is a true saying that "fat ewes make fat lambs."

THE SMITHFIELD CLUB FAT STOCK SHOW.

THE exhibition of animals that has been held in the Agricultural Hall this week, together with the splendid stands of roots exhibited by the leading seedsmen, also the great display of farming and household appliances, afforded no indication of a depressed agriculture. The animals generally were of excellent quality, and the huge and almost immovable examples of obesity of a few years ago find little favour at the hands of Judges now. Scotland has scored a great triumph this year, the champion beast of the Show being a wonderful animal of the Scotch polled breed exhibited by Sir Gordon Cumming, whose heifer won the silver cup as the best animal in her division; next she took the £50 silver cup as the best heifer or cow in the Show, the male animal winning the £50 silver cup for the best steer or ox in the Show. The final adjudication gave the crowning honour to the heifer—the champion plate of one hundred guineas as the best beast in the entire Show, and her breeder receives the Society's gold medal. Nine times out of the twelve upon which this special prize has been previously given it has, however, fallen to Shorthorns, but only once did it go to Scotland; that was in 1872, when Mr. Bruce achieved the honour with his polled Aberdeenshire steer. Shorthorns were more numerous but not quite so good as on former occasions, Mr. Wortley of Aylsham securing the highest prize. Herefords were splendid, Mr. Lewis Loyd of Beckenham having premier honours, the Queen receiving a prize in the section.

Devons were excellent. Mr. Walter, M.P., taking the chief, the Prince of Wales also being a successful exhibitor. Cross-breed animals were admirably represented, Sir John Swinburne securing the highest award. The sheep and pig classes were filled by animals of remarkable merit, and attracted a large share of attention.

Roots.—The display of roots was as usual extensive, all the leading firms of seedsmen contributing imposing and well-arranged stands. Messrs. Sutton & Sons, Reading, had a large stand, in the centre of which were displayed some dozens of silver cups won by exhibitors at various shows of produce raised from seeds supplied by this firm. Among the roots, which were mostly even and of good size, were fine samples of Golden Tankard, Intermediate and Long Red Mangolds, and Champion Swedes. Potatoes were also largely represented, with samples of grasses. Messrs. J. Carter & Co., High Holborn, had similarly handsome samples of roots, their Warden Prize, Tankard, and yellow-fleshed Mangolds, with the Imperial Prizewinner Swedes, attracting much attention. Lincolnshire Red Globe Turnips were also well represented, with fine Cabbages and Potatoes; of the latter Scotch Champion and Magnum Bonum were particularly noteworthy. Messrs. E. Webb & Sons, Stourbridge, contributed a large and attractive stand in the south gallery, the roots as in the others forming the chief feature. Mammoth Long Red, Champion Yellow Globe, Yellow Flesh, and the Kinver Globe Mangolds and Imperial Swedes being represented by handsome even specimens. Messrs. Harrison & Son, Leicester; Thomas Gibbs & Co., Piccadilly; and J. King, Coggeshall, Essex, also had stands, those from the two former being highly creditable to the firms.

POULTRY AND PIGEONS.

EARLY VERSUS LATE CHICKENS AT SHOWS.

AMATEURS who are anxious to have their chickens in good condition for the leading shows are often urged to mate their birds early and hatch early—that is to say, in January, February, or March, and not later than April. Acting under this advice I know many who go to much trouble and expense to secure early chickens for the Crystal Palace and other shows, and for some time back I have been wondering if this is really necessary.

After consulting the last Palace catalogue I should say not. Three parts of the cockerels and pullets entered there are not over seven months old, many are only six, and some less than this, while few are eight months, and hardly any nine or ten. The average being seven months proves that April and May must be the favourite months for hatching the best fowls of the season, and this being so I think the fact is worth noting.

If birds of the finest description can be hatched-out generally in April, I think it is a pity that fanciers should go to so much expense in early rearing. All who have had chicks out in January and February know that they require much more attention and more expensive feeding than April and May birds. It is generally thought that large fowls should be hatched sooner than small ones, as it takes them longer to gain maturity; but amongst Coehins, Brahmas, Dorkings, &c., there were more seven-months birds at the Palace than any other age, while in some cases, such as that of the first-prize Any variety Cochin pullet, the age is given as five months and two weeks. That a June-hatched bird should take a first prize is rather suggestive, and probably it may have made others think, like myself, that many of us are in more haste than there is any occasion for in getting chicks hatched for the same season's shows.—J. MUIR.

[If Mr. Muir had many early chickens this year he was more fortunate than most breeders. It is, doubtless, owing to the general failure of early chickens that the ages averaged so low at the Palace—ED.]

POULTRY AND PIGEON NOTES.

SOME time ago we heard that a Society for the improvement of the German Toy Pigeons was talked of. We lately received a copy of the rules of the proposed Society, and a list of those fanciers who have sent in their names as wishing to become original members. It includes the names of many well-known breeders, and the Hon. Sec. *pro tem.* is Mr. W. H. Morton of Newent, Gloucestershire. The class for three varieties of Pigeons at the Crystal Palace contained some charming specimens, of which we specially admired the "Fairy Spots" and "Chequered

Priests." If such classes become common they will be a great addition to the attractions of shows. We see that classes are also to be devoted to these birds at the Cambridge and Cardiff Shows.

THE cup Black Red Game pullet at Birmingham, shown by the Messrs. Staveley, was claimed by Captain Heaton for fifty guineas. This is the longest price we remember being given for a single hen.

OF late years White Trumpeters, at least birds good enough to compete with Mottles, have bid fair to become extinct. We were very glad, therefore, at Birmingham to see several fine specimens, shown by Mr. J. C. Wood, Mr. Hutcheson, and Mr. Shaw. The latter gentleman always gives fanciers of various breeds a treat at Birmingham, but hardly ever shows elsewhere.

BREEDERS of Runts as table Pigeons had a good chance of improving their stocks; we never before saw so many large-sized Runts at such moderate prices.

SOMEHOW it generally happens there that quite a different set of Fantails to those successful at the Palace, win at Birmingham. The first White cock (Mr. Stevenson) is a little beauty, and we much admired the immense length of tail feathers of Mr. Serjeant-Son's third White. Mr. Cresswell's little cup hen at the Palace here only received an "hc;" on the other hand Mr. Stevenson's saddleback, he at the Palace, won first in his class.

AS usual, Mr. Tedd won cup with a magnificent Black Swallow, and Mr. Bulley was second with a very good Yellow.

IN Turbits again there were some strange reversals of fortune from the Palace. Mr. T. S. Stephenson's cup Red was only "hc," whilst Mr. Bulley's third Yellow received the cup. Second was one of Mr. Perkins' pretty little Reds, rather unaccountably passed at the Palace.

IN a two-guinea selling class Mr. Yardley was first with a pretty pair of Whiskered Owls, white, with blue tails. We were surprised to see them unclaimed.—C.

THE SCHEDULE OF THE POULTRY CLUB SHOW.

CONSIDERABLE interest attaches to the forthcoming Cambridge Show. It is the first effort of the Poultry Club in this direction, and, as the schedule is very liberal and well arranged, we trust the result will be such as to lead to the event becoming an annual one.

There are to be altogether eighty-nine classes for poultry; of these, however, four are selling and six local classes. The Show is to be held in conjunction with the Show of Pigeons, Cage Birds, and Rabbits of the Cambridgeshire Ornithological Society, and it is for members of this Society only that the local classes are intended. Throughout the open classes there are six prizes for the varieties which are usually most numerously represented in the show pen, and five prizes for all other classes. Where there are six prizes they run as follows—£3, £2, £1, 15s., 10s., and 5s.; and in the five-prize classes the figures are the same less the £3 first prize. Both sorts of Brahmas, all the varieties of Cochins, and the chief Dorking sections, are respectively divided into three classes, one for cock and hen, one for cockerel, and one for pullet. Aseels, the various sorts of Game and Game Bantams, as also Houdans and Crèves, have each a class for cock or cockerel, and another for hen or pullet. Andalusians, the Dorking and French variety classes, the five sorts of Hamburgs, Langshans, the two varieties of Leghorns, Malays, Minorcas, Plymouth Rocks, with the kindred Scotch Greys and Dominiques (these three being classed together), four sorts of Polish, Silkies, Spanish, Sultans, the large variety class, and four varieties of Bantams, as also five classes of Ducks, one of Geese, and one of Turkeys, are to be shown in pairs of any age. There is a class for live table poultry of any pure breed, or first cross between two pure breeds, with a condition that in the latter case the parentage shall be stated. We trust this class, which has five prizes varying from £2 down to 5s., will be more amply filled than is usual with such classes.

The entry fee to members of the Club will be 5s. throughout, to others 2s. 6d. more, except in the selling and table poultry classes, where the fee is 5s. to all alike; and it is announced in the schedule that members elected up to December 16th will be entitled to all the privileges of membership in respect of the Show.

Members of the Club elected at and after the Palace Show are, as our readers are aware, only liable to subscription for 1882.

The Poultry Club rules are, of course, to be observed, and amongst the general rules we notice one (No. 3), apparently especially framed to meet the difficulties as to which the Club recently took counsel's

opinion. This rule provides that exhibitors in the open classes may bid for, and buy-in, or withdraw their birds from sale, but that an entry in a selling class shall be construed as an irrevocable authority to sell the bird or birds entered in the usual way at catalogue price or by auction, and that these exhibits shall not be bought-in or bid for by their owners. This is, as we gather, the intention of Rule 3, and it seems to us to very fairly meet the difficulties which have arisen. Many shows are now adopting Club rules, but even for those which do not it may be worth while to insert a similar rule to No. 3 in their schedules.

Pigeons, cage birds, and Rabbits have numerous classes, but as these are necessarily entirely in the hands of the local Society they are, of course, not provided for on the same scale as the poultry.

We are informed by Mr. Comyns that he is making arrangements to have through vans from all the chief centres to Cambridge, so that the exhibits may escape the numerous shocks incident to the transfer from one truck to another. The London and North-Western have already undertaken to supply through vans to any requisite extent, as well from their own main line *via* Bletchley as from the Great Western *via* Oxford. The Great Northern, the Great Eastern, and the Midland also all run into Cambridge; and as the South-Eastern and Chatham and Dover are in direct communication with the Great Northern, while the South-Western and North-Western have a connection *via* Willesden, and the London, Brighton and South Coast, and the Great Eastern have a connection *via* the Thames Tunnel, there ought not to be any difficulty as to railway arrangements. If there are sufficient entries through vans will doubtless be arranged from almost every principal line in England, Wales, and Scotland direct to Cambridge. Everything seems thus to point to a success, and we hope it may be achieved. The Show is to be held on January 4th and 5th, 1882, and the entries close on the 20th inst.

CUP FOR SILVER-GREY DORKINGS.—As I appealed through your columns for subscriptions to the cup for the best adult Silver-Grey Dorking at the Crystal Palace, may I announce through the same medium that the subscriptions kindly sent to me were as follows:—J. W. Andrews, Esq., 5s.; J. Cranston, Esq., 10s.; The Countess of Dartmouth, 10s.; Thos. Moore, Esq., 10s. 6d.; Miss Pasley, 10s.; Rev. H. R. Peel, 10s. 6d.; P. E. Plummer, Esq., 5s.; Mrs. Radclyffe, 10s.; Wm. Roe, jun., Esq., 5s.—O. ERNEST CRESSWELL.

OUR LETTER BOX.

Books (A. D.).—The essay on "The Horse's Foot and How to Keep it Healthy," can be obtained, no doubt, from W. H. Smith & Son, 186, Strand, London, W.C., but we do not know the price. The latest essay on "The Principles of Horse-Shoeing," by George Fleming, F.R.C.V.S., Army Veterinary Inspector, is the 13th article in the Journal of the Royal Agricultural Society of England, published in Part I., 1881, price 6s. These essays are the best ever published on the subject. The Society's Journal is printed and sold by William Clowes & Sons (Limited), Stamford Street and Charing Cross.

Fowls Coughing (E. Pearson).—Get at a chemist's some of the common solution of nitric acid and the like of sulphuric acid. Put ten drops of each to a quart of water, and add sugar enough to take the bitter taste off. Give this to the fowls to drink. You might also try mixing some of Walton's tonic paste with their soft food. Is their roosting place dry? and have they a dry house or shed to resort to in wet weather? If not you must see to this, or medicine will be of no avail.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881. November. December.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.				
		Dry.	Wet.			Max.	Min.	In sun.	On grass.			
Sun.	27	Inches.	deg.	deg.	S.W.	deg.	deg.	deg.	deg.	In.		
Mon.	28	29.018	45.8	41.8	S.W.	47.6	55.8	40.1	74.8	37.2	0.178	
Tues.	29	29.243	48.3	45.7	W.	46.7	53.3	42.1	74.6	37.5	—	
Wed.	30	29.911	38.4	37.9	N.W.	45.8	46.1	35.2	62.0	28.4	—	
Thurs.	31	30.099	45.4	44.3	S.	44.1	47.5	33.6	51.7	27.2	0.138	
Friday	1	29.954	45.4	41.6	S.E.	44.7	50.9	43.9	50.7	40.4	0.142	
Satur.	2	30.262	47.4	46.4	W.	44.5	53.6	35.8	72.3	29.8	—	
	3	30.169	44.4	42.6	S.S.E.	45.1	50.8	43.2	65.3	36.7	—	
		29.818	45.0	43.3		45.5	51.1	39.1	61.5	33.9	0.458	

REMARKS.

27th.—Very stormy, bright sunshine, and heavy showers at intervals; hail 5.35 P.M.

28th.—Rough night and early morning; fine, calm, sunny day.

29th.—Foggy morning, fair but generally hazy.

30th.—Fair, calm, cloudy.

1st.—Dull and rainy greater part of the day; starlight evening.

2nd.—Fine throughout, with some bright sunshine; moonlight night.

3rd.—Fine, but not very bright; sunshine in morning.

Although rather colder than the previous week, the temperature has been considerably above the average, and thus November has been the warmest for at least a quarter of a century. Very heavy gale and very stormy throughout 27th and the early morning of 28th.—G. J. SYMONS.



15th	TH	Royal Society at 4.30 P.M., and Linnean Society at 8 P.M.
16th	F	
17th	S	4TH SUNDAY IN ADVENT.
18th	SUN	
19th	M	
20th	TU	
21st	W	

LEEKs.

JUDGING from what has appeared from time to time, especially last spring, in the Journal, recommending Leeks as a good and reliable vegetable, we conclude that they are not generally cultivated in these islands. Indeed, judging from some of the instructions given by the majority of southern growers, we doubt if even those who do grow them have them at all satisfactory, even in that land of Leeks—Wales.

In the northern half of this island Leeks are generally grown, alike in the nobleman's many-acred garden and in the cottager's little patch or "kailyaird," and are appreciated alike by peer and peasant. Possibly the difference in the cooking of the two divisions of the country accounts for the different degrees of popularity in which this esculent is held. In the north vegetables are mostly used in soups, and seldom is the Leek otherwise used. "Cocky-leeky" is a favoured dish among the upper classes, but not among those lower in the social scale and "cocky-leeky" is the only way that we know of whereby Leeks are used simply as a vegetable. In this form the flavour is too strong for ordinary tastes. In soups, even in Leek soup pure and simple, this strong flavour disappears, and is replaced by one which few northern palates do not appreciate.

If a few necessary rules are observed in its cultivation a crop is certain, even in the least favoured positions. It is like Borecole in this, and bleak indeed must be the spot where neither will grow. For this reason it replaces Onions where climatical causes make the latter a precarious crop. It is also particularly free from insect pests, thriving where Onions are destroyed wholesale by maggots. And then every portion of the plant may be used; so it is an extremely economical vegetable to grow where ground is limited or reasons exist for growing only the most productive crop.

It is of no use attempting to grow fine Leeks on poor soil, for when stinted and starved the crop is scanty and the quality poor. The first thing, then, in the successful cultivation of Leeks is to trench the ground at least two spades deep, and to put a thick layer—the thicker the better—of rich partly decayed manure between the layers of soil, especially under the upmost one. This is for ordinary crops, for these are of the most value. To produce extraordinary crops, to furnish examples for exhibition or other extra purposes, such as those exhibited by a Scotch grower at Manchester last year, the soil must be trenched at the very least 2 feet deep and very liberally manured. To thoroughly incorporate the manure and the soil retrenching may be necessary.

The next point is the preparation of the plants, and various ways are in vogue among those who strive to excel. The common way is to sow the seed in a sheltered position on rich soil about the end of February or beginning of March, or later if the weather should not be favourable at the time stated. Battering them into soil at once cold and damp will effectually prevent success. The seed, though smaller than Onion seeds, will germinate under the same conditions; but, although all the plants are to be eventually transplanted, care should be taken not to sow too thickly; indeed we are not sure but the best way is to sow in rows 1 foot apart.

In order to forward a few plants handglasses or cold frames are sometimes placed over portions of the bed. Deep frames should not be used for this purpose, as the plants are apt to be weakened thereby. The seeds are often sown in cold frames for the same purpose.

To prepare a large number of plants in order to secure extra fine crops, we advise those who are ambitious to excel to make a mild hotbed and to cover it with a glazed frame about the middle of April. A strong heat is mischievous, and should be avoided. Rich soil should be used and the seeds sown thinly. Air should be given after the plants are up, and care must be taken that they never suffer by want of water. An occasional supply of weak liquid manure should be given, which will forward the plants considerably. If carefully treated they will be strong and fit to put out by the middle of May—a gain of two months, for plants raised in the ordinary way are not fit to put out till July. Two months of summer weather to grow in make a difference in the crop that needs to be seen to be believed. Leeks so raised will frequently, if put out on rich soil, measure 12 inches round the stem, and we have often had them with a 5-feet spread of tops by October. And Leeks grown thus are always of first-rate quality.

There is yet another way of preparing plants which is practised by exhibitors, by which the large specimens seen at northern shows are grown. About the beginning of February—not sooner, or the plants will be apt to run to seed prematurely—the seed is sown in rich soil in pots and placed in stove heat. As soon as they show the second leaf, by which time they are forming the second root, the plants are placed in 3-inch pots in very rich soil. When the roots are coiling in these they are shifted into 6-inch pots. They are kept near the light, and occasionally given very much diluted urine or a little sulphate of ammonia. By the second or third week of April they will be fit for kitchen use, and should be hardened off. We do this by placing the pots in a frame into which a foot or so of hot manure has been placed. This will maintain a temperature nearly equal to that to which the plants have been accustomed, and as it cools the Leeks will harden. Then ventilation should be increased for a week or two, when the plants will be ready to be put out. Instead of using pots for the plants they may be pricked into boxes, but in transplanting a check will be given, whereas when pots are used no check is given; at the same time we have raised many fine Leeks in this way. Melon pits, Cucumber frames, and other warm structures, too warm for forwarding any other hardy vegetables, will do capitally for Leeks if they can be well exposed to light. A high temperature will ruin Cauliflowers or Celery in a few days, but will benefit the Leeks. Those, therefore, who can neither spare manure to make hotbeds or afford cold frames for this may utilise any spare room at their disposal.

We have heard of Leeks with blanched stems about a couple of feet in length, but have never seen such, except those we have wasted time on. Among most strains "whip-tails," as they are called, appear, the chief characteristics of which are extraordinary length, and leanness of stems and leaves alike. To an ordinary observer these look as if going to run for seed, but really do not. Believing we could make something of these we seeded some, and by deep planting and earthing-up the stems which naturally shot up we have had blanched stems over 20 inches, but very thin and whip-handle-like. We presume those we have heard of must have been similar, for we have never seen them exhibited. The best we ever grew or have ever seen were about a foot in the blanch or a little over. Stout solidity is to be preferred to dangling weakness, although it sounds well to say that Leeks with 2-foot-blanched stems have been produced.

Do not plant the Leeks among the Celery, and do not plant them in trenches like Celery. Earthing them up is a mistake; nobody ever produced good Leeks in that way. Again and again we have been shown Leeks grown on the Celery-trench principle, but they were not satisfactory. The secret lies in obtaining strong plants, put out deeply on well-prepared soil, at a time when ordinary growers are watching theirs coming up.

For ordinary crops there is no better way of planting than the old-fashioned one of making holes with a dibble a few inches deep (that is down to the layer of manure under the upper spade of soil), and dropping the plants into them singly, but putting in no earth except that which falls in of itself. The hearts of the plants will be much below the surface; but that is just what is wanted, for the hearts will come to the surface, and so the stems will be drawn out to the same length as the hole is deep. We need hardly add that the long blanched stem is most valued, but we warn beginners that the stems can only be lengthened by deep planting. When once the plants have grown strong earthing-up will not cause the stems to elongate.

The plants in pots must be placed in holes dug with the spade. This digging loosens the soil, which would fall into the centres of the plants and spoil them, but this can be prevented by putting a stiff paper funnel round each plant. In a week or two the stems will be drawn so that the centres will be at the surface, when the funnel may be removed.

Leeks raised in the ordinary way may be planted in rows 14 inches apart, those on a hotbed 2 feet apart in the rows and one in the rows, pot plants 2 feet each way. A thick mulching in hot summer weather is of great benefit, and when the soil is pretty well filled with roots a thorough soaking of weak liquid manure will produce surprising growth. Nothing is better than diluted urine from stables or cowhouses, but sulphate of ammonia is very good.

The hardiest and most generally useful Leek is the Musselburgh, the largest is Ayton Castle. Most successful exhibitors at the larger Scotch shows, however, grow neither, but possess strains of their own, of which they are generally very jealous. The best way to secure a good strain is to pick the finest plants and save seed. Those who have never done so and will now begin will be considerably astonished at the results, for Leeks are about the worst-selected vegetables we have. In any ordinary half ounce of seed there are at least a score of distinct varieties, and nine-tenths of these are inferior; and yet the Leek comes wonderfully true. Carelessness alone is the cause of its apparent inconstancy. In selecting plants for seed only those of stout vigorous habit should be chosen, and if for exhibition "Onion-headed" varieties should be avoided, for although this Onion-head is really the best part of the Leek, it is objected to.

In preparing the plants for exhibition they should be carefully lifted with all the roots entire, one or two of the outer rinds being removed from the stem, for these are generally yellow, and dirt is almost always seen shining through. This spoils their appearance, and gives them an unsolid appearance besides. Closeness of texture, solidity, purity of white, straightness, uniform thickness, and length of blanched stem, are the points aimed at by those who engage in Leek-growing and exhibiting.

Anyone who finds himself in spring with a number of Leeks

running to seed need not conclude he is going to have a great loss. If the seed stems are pinched out the plants will form bulbs at the roots like Onions. These are by many preferred to either Leeks or Onions as a vegetable when stewed tender and served with roast meat.—A. H. H.

ORCHIDS IN DECEMBER.

THE summer-like weather of last month makes us almost forget winter, but it must be remembered that in the course of this month we are usually subject to frosts which are often very severe and frequently of long duration, and that it is therefore necessary to be always on the alert. On no account must the firing be increased in the event of frost. The temperature should rather be kept low and the moisture mopped up, and the doors and all apertures be covered with mats, especially those with a northern aspect. The temperature should be the same as last month's readings. It will be well now to inspect the surfaces of the pots, so as to remove moss from any new pseudo-bulbs or growths which may be too deeply imbedded.

Of the winter-flowering Orchids the beautiful free-flowering *Angræcum eburneum* is now in bloom. Its ivory-white flowers have a fragrance like that of the Poet's Nareissus, and remain in perfection for about five weeks. The flower spikes of this species are subject to the attack of yellow thrips, which soon disfigures the flowers. The best means of destroying it is to apply a weak solution of tobacco water along the stem, two applications being generally sufficient for the purpose. *Angræcum pertusum* is now in full beauty, producing its gracefully pendulous spikes, bearing numerous small white flowers. This plant should always be kept in the warm house with a moist atmosphere, and should never be allowed to be dry. *Angræcum sesquipedale* is expanding its large ivory-white and long-spurred flowers, which have a Lily-like fragrance. It sometimes bears as many as four to seven blooms on one spike, and remains in perfection for several weeks. Formerly these plants were not supposed to flower until they had attained the height of from 3 to 4 feet, and being of slow growth they took some time before they reached these dimensions, consequently they were very expensive and beyond the reach of many Orchid lovers; but, thanks to the many importations, we have now plants which produce from one to two spikes each when only 10 to 12 inches high, and the prices have fallen considerably. Whether this is a different variety or not we cannot say, but the flowers are equally as good as those produced by the larger plants, and where space is a consideration these small plants are invaluable.

Barkeria Skinneri, with beautiful dark rose-coloured flowers, twenty to thirty on long spikes, is in bloom; also *Barkeria Lindleyana*, with its long spike of rich purple flowers, with a white blotch in the centre of the lip. The *Barkerias*, the culture of which all have not quite mastered, seem generally to do well suspended on bare blocks near the glass in the cool house; or another good way is to place the block in a pot, with charcoal and sandstone to steady it, where the plant delights to throw out its thick fleshy roots, requiring little or no peat or moss. They must have plenty of water when growing, and abundance of light and air.

Cœlogyne barbata is not so well known as it should be. It produces a strong irregular spike, bearing numerous flowers with white sepals and petals, and a dusky brown lip elegantly fringed. It requires to be grown in the cool house with plenty of water, but should now be removed to the intermediate house, and when it has flowered again returned to the cool house. *Cymbidium Mastersi*, with its almond-scented flowers, is in fine condition. This resembles *C. eburneum*, but the flowers are smaller and more numerous. It should always be grown in the Cattleya house. *Cymbidium giganteum* and *C. Lowii* are fine winter-blooming Orchids. *Cymbidium eburneum* is showing its spikes, which will soon bear from two to three flowers of ivory-like whiteness, and with a delicious odour. Careful attention should be paid to see that no water lodges in the axils of the leaves. Those not already showing or strong enough to flower should be kept in a somewhat dry state, just sufficient water being given to keep them plump, their growing season being from April to December.

Dendrobium nobile—This floriferous species and its varieties have the buds starting, and should be gradually brought on. *Dendrobium Wardianum* (imported variety) will require the same treatment—that is, if showing its buds. *Lælia acuminata peduncularis* is a beautiful epiphyte, producing from the top of the pseudo-bulbs a long spike bearing six to seven flowers of a rosy colour and with a dark purple centre to the lip. It should be grown on a block in the cool house, and requires the same treatment as *L. alba* and *L. autumnalis*, which, with *L. anceps* and

L. Perrinii still render the houses gay and attractive. *Lycaste Skinneri*, a truly handsome winter-flowering Orchid, with its varieties ranging from pure white to the deepest crimson, will now be in bloom, and is invaluable at this period on account of the long time the flowers remain in beauty either on the plant or when cut and placed in a vase. The plants should be grown in the intermediate house and kept rather shady during the growing season, which is from May to October, and should not be allowed to become dry at the roots. Now they should be in a drier atmosphere, so as to prevent the flowers spotting. *Lycaste lanipes* is also producing its numerous greenish white flowers, which are useful for cutting. It requires the same treatment as *L. Skinneri*. The fiery red blooms of *Masdevallia ignea* look well now amid their dark green foliage. *Masdevallia towarensis*—This, the only white *Masdevallia* in cultivation, is very floriferous, bearing as many as four charmingly pure white flowers on a single peduncle, and blooming from the old spikes as well as from the new ones. It is the easiest of the family to cultivate, and delights in a cool damp atmosphere and placed near the glass. Until lately it was a very expensive plant, but, like *Angraecum sesquipedale*, is now within the reach of everyone. *Maxillaria grandiflora*—This beautiful *Lycaste*-like Orchid will now be in flower. The flower is sweet-scented and of a pure snow-white colour, with a sack-like lip blotched with purple on each side. It is of easy culture and thrives well in the cool part of the *Odontoglossum* house with a plentiful supply of water, but now while in flower should have a little heat and be kept drier, and as soon as done flowering put back into the cool house, because it soon becomes covered with thrips if allowed to remain long in heat.

Odontoglossum Alexandrae, *O. Andersonii*, *O. angustatum*, *O. cirrhosum*, *O. gloriosum*, *O. Hallii*, *O. Pescatorei*, *O. radiatum*, *O. Rossii*, *O. Roezlii*, *O. triumphans*, and *O. tripudians* will now be in different stages. These will require careful attention in looking after for slugs and green fly, which attack them now. A good method to protect them from slugs is to have a trough filled with water, into which place an inverted pot, and then stand the plant on the bottom of it. *Oncidium cucullatum*, a very free-flowering Orchid, is in flower and making a grand display with its green chocolate-banded blooms with large rosy lip, and having the additional charm of being pleasantly fragrant. *Oncidium cheiroporum*, with its branching spikes about 8 inches high bearing from forty to fifty small yellow Heliotrope-scented flowers, is beautiful now.—ORCHIDIST.

APPLES AND HOW TO USE THEM.

LITTLE by little we make the experiences of others our own in possession and practice, and if not too late I should like, in return for all the information gained from the communications entitled "Scraps about Fruit," to offer a remark or two about culinary Apples.

These, as a rule, unless specially required small, are to be preferred as large as possible. No better example of a profitable and economic Apple as to earliness, size, thinness of skin, colour (in cooking) and texture is to be found than Lord Suffield. The size and delicate skin do not waste the cook's time and temper in paring as smaller and thicker-skin varieties do. Cellini succeeds Lord Suffield, different in shape and colouring, not so free a bearer, but when well grown large and handsome. I have fruits of Cellini now measuring 10 inches in circumference and weighing 6½ ozs. Winter Hawthornden and Stirling Castle follow. With very late culinary Apples I am not so well acquainted, but most table Apples, if a proper proportion of clear cold spring water be added to them in stewing, will turn out juicy. Some sorts require very little sugar, and the tartness of any variety may be increased by the addition of a squeeze of Lemon juice.

As a preserve or compôte Apples may be used in a variety of ways, and are healthful, refreshing, and less cloying for young people than preserves prepared with the full proportion of sugar.

In Germany Apples are much used in open tarts, cooked thus—Pare and core 3 lbs. of Apples, boil them till perfectly soft and free from lumps in an enamelled pan with about half a pint of cold water, boil quickly and beat free from lumps; when quite soft add three-quarters of a pound of lump sugar and boil twenty minutes more. Lemon juice, grated and fresh lemon peel, or lemon candied peel, or a few well-washed and dried Currants may be also stirred in. Apples thus treated will keep good for weeks, and put into open tarts or tartlets with a crisp short crust, or served as a compôte to be eaten with custard or cream, they make a popular variety among sweets.—A. M. B.

HYACINTHS.—The appearance of these bulbs is very much improved for room-decoration by planting the surface of the pots with

any of the dwarf Mosses. *Selaginella denticulata* is one of the best for this purpose, pots of which should be previously prepared, so that it may be ready to lift at the time the Hyacinths are placed in the forcing pit. If then carefully lifted and placed round the Hyacinth bulb, in a few days it will look quite fresh and commence growing. I find that the Lycopods are improved by weak liquid manure.—LEADENHAM.

NOTES ON POTATOES.

ALTHOUGH "AN OLD TATER" has not been very fortunate in his experience of Potatoes, yet I think he deserves our thanks for introducing this subject. The Potato being one, if not the most important vegetable crop grown, cannot receive too much attention from all who are interested in its growth. As each succeeding year some new varieties are introduced, some really good, others comparatively worthless, it is only by comparing notes that many can form any idea of their merits. Were the selection of a limited number of varieties left to myself I should be content with Myatt's Prolific Ashleaf, Mona's Pride, Early Rose, Dalmahoy, Snowflake, Magnum Bonum, and Paterson's Victoria. I think most growers will agree that Myatt's is an excellent early Potato. Mona's Pride for some reason is not so extensively grown as it deserves to be; I consider it one of the best kidneys in cultivation. Early Rose is a general favourite. Dalmahoy is an excellent variety but somewhat subject to disease (at least such is my experience). Snowflake is a good Potato, medium size, no waste, and when cooked like a ball of flour. We planted a large breadth of it this year, and I do not suppose we picked a dozen diseased tubers out of the whole crop. Magnum Bonum is a good cropper, and is not so subject to disease as some, but as the haulm grows very strong it is not a desirable variety for a small garden. Anyone possessing plenty of room, or an open piece of ground on which they do not desire to plant a second crop, cannot do much better than plant this sort. Paterson's Victoria is a good old sort, though since the introduction of many of the American and other varieties is not quite so often met with, still I believe it to be quite capable of holding its own against any of the new comers. There are, of course, many other excellent Potatoes grown equally as good, no doubt, as the few I have mentioned, and some do better in one place than they do in others, but I can recommend the varieties I have alluded to, as I have seen them doing equally well in several parts of the kingdom. This season we also planted Woodstock Kidney, Schoolmaster, and Scotch Champion. Woodstock turned out fairly well and nearly free from disease; Schoolmaster coarse and ugly, the whole crop diseased. The Champion, no doubt, is excellent for killing weeds owing to the great quantity of haulm it produces, but the produce is coarse and slightly diseased. Some speak highly of this variety. Tastes differ: my opinion is the same as "AN OLD TATER," that when cooked it is coarse in texture and hard in the centre.

With reference to the disease attacking Potatoes, I believe as a rule many plant too late. Were they to plant earlier the probability is that they could have their first and second earlies up before the disease usually appears. Some years ago, when in charge of a garden in the midlands, I trenched a piece of ground early in the autumn, the aspect was a slope to the S.W. Having heard much about autumn planting of Potatoes, I decided to give it a trial. I planted Mona's Pride and Gloucestershire Kidneys. Happening to mention what I had done to our vicar, he told me autumn planting was a common practice in Hants, and I should find that, though the crop would be but little if any earlier than the spring-planted, yet the produce would be better. What he stated turned out correct. I could not wish for a better crop, all of good size, scarcely a small tuber amongst them, and quite free from disease. But while believing that good results may be obtained from autumn planting, I would not advise its adoption unless their ground is high and dry, or is thoroughly well drained. My Potatoes were planted about 6 inches deep, and a slight covering of litter was placed on during very sharp weather. In the following spring, side by side on the same ground, were planted Dalmahoys and Magnum Bonum. Both produced magnificent crops, but unfortunately the disease made its appearance rather early, and I lost about half the Dalmahoys, while the Magnum Bonums were not affected in the least.—CANTAB.

YOUR correspondent on page 492 gives his experience with different varieties of Potatoes, and, as I have grown some of the varieties he mentions, I venture to give my experience of them also.

To begin with Early Rose and Beauty of Hebron. Mr. Abbey finds these are of poor, waxy quality. With me they are not only excellent in quality, but good croppers and quite free from

disease. *Magnum Bonum*, he says, is remarkable for everything but quality. With me it is a great cropper, free from disease, of first-rate quality, and keeps well till late in the season. Schoolmaster he finds very disappointing. It is one of the sorts most grown here, is of good quality, very floury when cooked, and not of such bad shape as your correspondent finds it. We depend on it and *Magnum Bonum* for our main crop. *Triumph*, he says, quality "fairly good;" with us it is very bad in quality, watery, and of bad flavour though free from disease. We shall not grow it again. *Vicar of Laleham*, *Victoria*, and *Brownell's Superior*, though of good quality, are very much diseased this year. *Covent Garden Perfection*, though of good flavour and free from disease, is a small cropper here. *Redskin Flourball*, *International*, and *Scotch Champion* are coarse and bad flavoured. *Woodstock Kidney* is a very handsome Potato, with shallow eyes, good in quality, but does not grow very large though a fair size for table. *Snowflake* is of excellent quality, but is a little diseased some years. *Reading Abbey* I do not like; though a good cropper the tubers are of bad shape with deep eyes. *Hundredfold Fluke* is bad in quality and much diseased. *Trophy* is a great cropper; it keeps well, and is of good quality.

The following six varieties I think are worthy of attention, as they are to a considerable degree free from disease—*Magnum Bonum*, *Schoolmaster*, *Woodstock Kidney*, *Trophy*, *Beauty of Hebron*, and *Early Cockney*; the last named for first early, and it is especially suitable for frame culture.—A SURREY GROWER.

LIFTING OLD VINES.

I HAVE read with interest the notes on *Marston* and *Longleat*, and especially the references to the Vines at *Marston*. As old Vines I take a great interest in them, and shall be glad to hear through the *Journal* next season how they have behaved. If the wood ripened well this year good Grapes will be sure to follow next season. Many gardeners are afraid to interfere with the roots of Vines, and most of the failures of bad colouring is through the roots being in exhausted soil. You may supply liquid manure and top-dress with manure, but the results are not what would be obtained with good loam and wood ashes. By removing the exhausted soil and applying new we do not lose a crop of Grapes, but improve it the first season. I have lifted several Vines which were thought to be worn-out with bad treatment and age, and I knew before I started lifting them that my employers would expect good Grapes the following season. I will briefly state how I proceeded.

Where the roots were I did not know; we tried in several places and could not find any. At last we found a few black-looking sticks amongst the drainage, which proved to be roots. The soil was prepared previously, and consisted of good loam, brick rubbish, and wood ashes. I may state that ours were lifted in September and October when they were bearing the foliage, but almost equal results may be obtained by lifting now. In fact, where late Grapes are required it is impossible to commence lifting before this. When lifting now choose mild weather, as frost would injure the roots if exposed. Dig a trench about 8 feet deep from the outside wall, cutting off all the old roots. If the roots are inside and out it will be better, as the few roots that are inside will help the Vines to start next season if they are well watered. After the trench is made commence forking the soil out, working very carefully or the roots will break. Do one Vine at a time. If the drainage is defective renew it, and fill up the border to within 1 foot of the surface, and then spread out the roots, cutting off the bruised parts with a sharp knife, and notch them at intervals. Cover the roots with fine soil, and let the upper roots be within 6 inches of the surface. Cover the border when finished with straw to protect it from wet and frost. When ready start the Vines into growth very gently. When the shoots are about 8 inches long, be careful not to hurry them, as it is the stored-up sap that has caused them to grow. When the shoots have made good progress give a good watering with water about 90°. As their roots will be emitted freely let the laterals run a few joints longer than usual, and allow a few to grow at the top and the bottom of the rod to maintain root-action. If this process is carefully carried out and good cultural attention is given, old Vines may soon appear young again, and fruitless rods fruitful.—A BERKSHIRE MAN.

FLOWERS IN AUTUMN.—All admit that flowers are beautiful at all seasons, but the scarcer they are the more they are prized. The old Monthly China Rose, as well as the White China, are now very beautiful and do us good service for cutting. Spring-sown Pansies are flowering freely. *Aster elegans* is a grand object in the borders now, and *Aster dumosus* is highly attractive. *Helleborus atro-rubens*

is flowering in the border and likely to continue for a long time; *H. olympicus* is also in beauty. Both these are worthy of extensive cultivation. Other kinds of *Hellebores* are coming into bloom, with a little protection will be fine for Christmas decoration.—NORTH YORK.

ADIANTUM FARLEYENSE.

I HAVE no doubt there are many readers of the *Journal* who would like to grow this lovely Fern, but are prevented doing so through not knowing that it will thrive in a greenhouse with a minimum temperature of 45° through the winter months. Many fail to succeed through continually shifting the plants into larger pots and not supplying sufficient water. It ought on no account be allowed to become dry, but the soil should always be kept moist. The soil used for potting should be sandy loam with plenty of broken bricks and charcoal well mixed and placed firmly in the pots, these being well drained so that the water passes freely through.

By the above treatment fine specimens can be had 3 feet in diameter in a short time, and the fronds will be much more lasting, and carry that beautiful tint on the young fronds which forms such a contrast to the older ones. We find small plants of this Fern are very useful for room-decorating. They last several weeks in good health.

The old fronds are in great request here, and by cutting the mature fronds the plants are continually producing young fronds even in midwinter.—STIFFORD.

[Some fronds accompanying this letter were very fine.—ED.]

SOME EFFECTS OF THE SEASONS IN 1881.

WITHOUT reference to meteorological instruments or tables, but judging from observations horticulturally, I am under the impression that the characteristics of the weather in 1881 will include a low average summer and autumn temperature, a deficiency of sunshine, and an excess of cold drying winds; and that this year will, if possible, prove more marked and singular in its effects on vegetation than any of its predecessors in the unpropitious cycle of years, the last of which I trust we are passing through, and which have all had their seasons more or less out of gear.

Notwithstanding the excessively hot days of June and July, it is only on the assumption that the average temperatures, especially of the summer nights, have been low and sunshine deficient, that I can account for the less perfect development and ripening of several plants and seeds than in either of the apparently colder years of 1879 and 1880. From this or some other unexplained cause or causes, the same varieties of Indian Corn, sown under at least equally favourable circumstances, have not ripened so well. Tomatoes in the open air up to early August looked promising, and with another week's hot weather would probably have mostly ripened as they did in 1880. In early August some showed colour and a few ripened, and for nearly six weeks afterwards remained almost at a standstill. The plants loaded with full-sized fruit were then seized by the Potato disease and the crop totally lost. Some tender Haricot Beans from the West Indies, and a variety of *Physalis* which partially ripened in 1879 and 1880, either never flowered or lost their flowers this year, although grown each year in warm situations. Ridge Cucumbers were also an unsatisfactory crop, and showed unmistakeable signs of the influence of cold nights; and some early Wheat, although sown earlier this year, did not ripen earlier than in the past two seasons.

On the other hand, outdoor Grapes have ripened in good time and better than they have done for several years past, and doubtless the concentration or the distribution of heat and sunshine at certain times has contributed to this result, as the Vine is altogether a hardier plant, which will bear greater variations of temperature. Early Peas coming in before the expiration of the hot weather ripened very quickly, and the extremely dwarf variety *Minimum* not only ripened a second crop of seed, but these again vegetated, and if the seedlings had been allowed to remain would probably now have been in pod. During the past three seasons I have secured no thoroughly ripened Rose seed from the open air, but this year I have obtained a good many ripe heps, the result of cross-fertilisation, the fine open weather of the past month probably accounting materially for this; but all will perhaps be more satisfactorily explained on a comparison of the mean summer and autumn day and night temperatures of the present and past two seasons. The last unusually wet September told very destructively upon the harvest of late Peas and other seeds as well as upon corn, and the recent unseasonably mild and moist weather is producing results which might have been anticipated after a

period of protracted drought; and not only are Strawberries fruiting in the open, but Apples, Pears, and Plums are blossoming now at the expense of next year's crop. Asparagus mulched down for the winter is throwing up good heads. Carrots sown in August have come a good crop, and early Potatoes left in the ground have made shoots 2 or 3 inches above the soil. Wall-flowers, Polyanthus, Primroses, Auriculas, Violets, with Phlox Drummondi and Stocks, are in full bloom. Autumn-sown Lettuces, and even spring Broccoli, are coming in, and Parsnips in the ground are running to seed.

Such are a few of the eccentricities of the seasons in 1881; but perhaps the worst feature is that the well-ripened wood of Roses and other shrubs are making young growth, in some cases an inch

in length, almost down to the bottom buds; and I fear that in case of ordinary sharp weather succeeding, this can mean nothing less than total destruction in many cases, and it behoves all gardeners to be prepared for the worst.—T. LAXTON, *Bedford*.

BEURRÉ BACHELIER PEAR.

THE Pear, a typical example of which is represented in the annexed engraving, possesses in favourable soils a combination of good properties. The tree grows well without being gross, and bears freely. On the Pear stock it makes a fine wall tree, and on the Quince a fruitful cordon and productive pyramid. It is, moreover, a very hardy Pear, and we have seen it produce

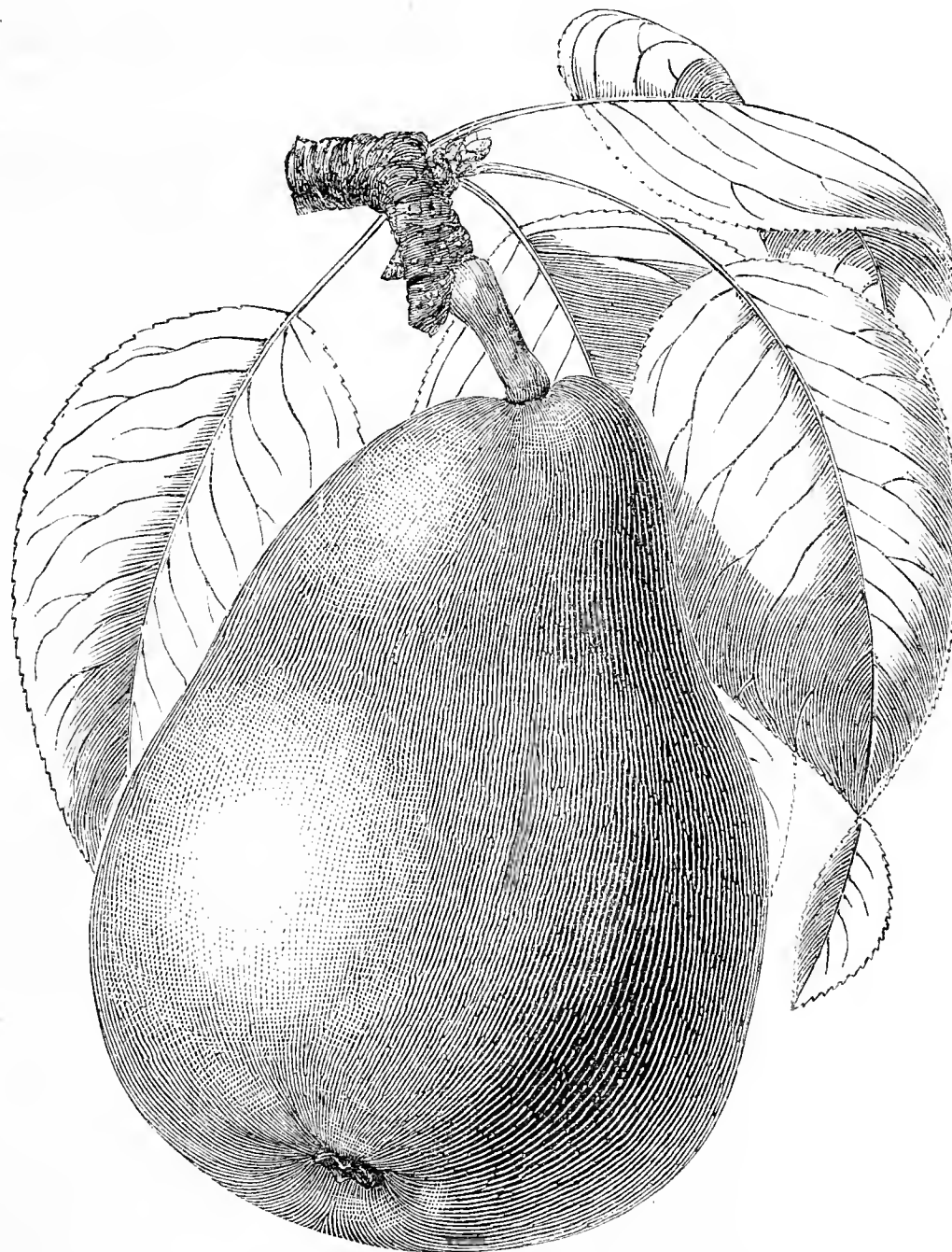


Fig. 84.—BEURRÉ BACHELIER.

excellent fruit on espaliers in northern districts, while in the south we have gathered grand specimens. The quality of the fruit varies considerably with soils and seasons, as also does the period of ripening. In good condition it is juicy, buttery, and richly flavoured, and decidedly ranks as a first-rate Pear both for the home, dessert, and exhibition purposes. The fruit is usually in use in December, but this year we had specimens fully ripe a month before we expected them. The abnormally high mean temperature of November has no doubt accelerated the ripening of this and other Pears, though other causes more or less obscure may have contributed to their precocity. The following is the description of this useful and excellent Pear—Fruit large and obovate, somewhat irregular in its outline. Skin greenish yellow strewn with russet dots. Eye small and closed, set in a shallow basin. Stalk short. Flesh buttery and melting, rich, juicy, sugary, and aromatic.

VAPOURISERS.—In answer to "A LOVER OF HORTICULTURE" allow me to say that my gardeners use a pair of bellows, at the end of which

is a brass ball containing the liquid you want to inject on the plants. The spray is very fine, and the bellows can be worked in any position. My gardeners are very much pleased with them; they are called Soufflet Injecteur Pilon. I obtained mine in Paris at Allez Frères, a well-known shop.—J. FREEMAN.

PROTECTING ROSES.

"D., Deal," is more fortunate than me. He writes to warn us not to be too anxious to protect our Roses; rather "unprotect," he says, by putting the fork under them, and so bringing the sap down to inquire what is the matter with the roots. Twelve months ago I wrote to the Journal giving similar advice, and saying, moreover, that the season being so mild, any "cossetting" would increase the destruction should very severe weather ensue. But, unfortunately for me, before my notes were printed a frost of 26° had made itself felt. We all remember the very sudden and extreme change at the end of last year.

But when "D., Deal," says that as many Teas are as hardy as

H.P.'s, he is right, and he is, I think, wrong. He is right when the Roses are grown on high land, and where only dry frosts exist; he is wrong (so I think) when the land is heavy and wet, and the situation low and the atmosphere moist. Where I am now living, on the top of a hill several hundred feet above the sea level, not a standard Rose has been killed during any of the past three winters, neither have they been protected, while a mile below in the "warm" valley not a standard Rose exists. Let me advise those whose gardens are in low situations to protect their Teas, but with light, short, and dry litter. Nothing is better, I fancy, than the Bracken Fern thoroughly dried. And after a thaw, when the Fern is very wet and pressed down by its increased weight, then I get a stable fork and shake it up lightly, so that the effect of breeze and sun may soon dry it; and in mild weather I bring it away from immediate proximity to the plants, and so prevent that "sweating," which, if followed by a hard frost, must be injurious.—J. A. W., *Alderminster*.

NOTES ON VEGETABLES.

I QUITE endorse the remark of "E. S." in your issue of November 24th respecting the benefit that would be derived if you were to devote a little space each week to notes on vegetables. In this county (Durham), and in fact the whole of the north of England and Scotland, Leeks are very extensively grown, and yet very few people seem to know how to grow them to anything approaching perfection. I have been told that in Scotland they have been grown this season with 23 or 24 inches blanched, but the largest I have seen measured 14 inches. I have tried again and again, but I seem to make very little improvement. I can manage to get about 8 inches of blanch, but that is the very outside. I have no stint of manure, and think I work the ground well. I sow my seed in a box early in February, and as soon as the plants are large enough I prick them into another one among a good mixture of soil and manure, and finally plant them into the open ground about the first week of May. If any of your numerous correspondents could give a few practical hints on the successful cultivation of Leeks it would enlighten among many of your readers besides—ONE IN THE DARK.

[Our correspondent will find some light on this subject on page 533.]

BRUSSELS SPROUTS.—Taking into consideration all the good qualities of this vegetable—hardiness, productiveness, and quality—it must be regarded, I think, as the best of all vegetables for autumn and winter use. But are not raisers and selectors spoiling it by "improvement?" I have tried different people's "giants," and have been a little proud of the results; but I have noticed the larger I grew the sprouts the less were they appreciated in the dining-room. Their size, colour, and quality are all complained of, and small, round, hard, green knobs are being asked for and pressed for. I have not a doubt there is good reason for complaint, for I must admit that neither in appearance nor quality the big coarse lumps are so good as the smaller, harder, greener knobs that are produced by the older varieties. Since writing the above I find "A KITCHEN GARDENER" (page 511) is of the same opinion as myself on this point. What do others say?—A NOBLEMAN'S GARDENER.

CERTIFICATING POTATOES.—A few weeks ago I observed some second-class certificates were awarded for Potatoes by the Vegetable Committee of the Royal Horticultural Society, and the matter was commented on in one of your notes. Since then the honours thus granted have been much discussed privately, and no one appears to understand what the certificates mean. If the Potatoes were first-class it would seem that second-class honours do not do them justice, while if they are only second-class in quality they are not worthy of a certificate at all. Potatoes are now increasing so rapidly and lists of them are so long that it appears undesirable, to say the least, that such a body as the Royal Horticultural Society should scatter needless honours that can only result in raising the price of seed. It would be instructive to know on what principles the Committee acted when they awarded second-class certificates for Potatoes. At the present the matter is not understood.—A PUZZLED POTATO RAISER.

EPIPHYLLUMS.—These on being introduced into heat may be made very attractive for room-decoration by having a few small seedling Maidenhair Ferns planted in the pot with them. The dark green fronds of *Adiantum cuneatum* have a good effect in contrast with their brilliant flowers, as well as hiding the bare stems of the plants. We had a few in this way last year that were very much appreciated.

When placed in a vase they have the appearance of a fine bouquet. The Ferns are quite at home in the same compost as *Epiphyllums*, and may have liberal supplies of liquid manure.—LEADENHAM.

ROYAL VISIT TO LONGLEAT—LUNCHEON IN THE VINERY.

WHAT dining-room, however bright and gorgeously furnished with all that wealth and taste can supply, could compare with the simple yet grandly proportioned vinery at Longleat for the purposes of a luncheon? The dining, reception, and drawing-rooms of the mansion were undoubtedly splendid by the richness of the ceilings, furniture, and flowers, but luncheon under a canopy of Grape Vines laden with large, symmetrical, bright amber-coloured bunches of fruit must be a treat even for a Prince, for it was under the magnificent Vines that their Royal Highnesses the Prince and Princess of Wales were, with other distinguished guests, entertained by their noble hosts on Saturday last. The Prince of Wales would undoubtedly see such an example of Grape culture as he has never seen before, and would not fail to appreciate the masterly way in which the Vines have been cultivated; and Mr. Taylor, I feel sure, would receive, as he deserves, the congratulations of His Royal Highness, who is always as ready to acknowledge merit as he is quick to perceive it. The table was fixed in the Muscat house, which, although it had supplied dessert in no stinted quantities to over five hundred people at the ball the previous evening, looked still to have a full crop; and the late Grapes, which are all black, hanging in the adjoining compartment amongst foliage of crimson and gold, made such a picture as needed no further ornamentation.

In passing through the vinery in question I was gratified beyond measure by the sight I beheld. Nothing equal to it, I dare assert, can be witnessed at this period of the year in any part of the kingdom. The house and its contents, the mode of cultivation, and many other details have recently been so accurately described by Mr. Wright that I need not here repeat them. I fully endorse all that has been said, and corroborate the soundness of Mr. Taylor's system of cultivation. I have the more pleasure in doing this, as it entirely in the most essential parts agrees with my own views as to the proper mode of Vine culture, which I advocated in the *Journal of Horticulture* many years ago.

If Mr. Taylor's success continues another year—and there can be no doubt if he is spared it will—all who wish to witness the successful cultivation of the Vine, and to learn not only how to grow it but to cause it to produce its fruits in due season in great abundance and of first-rate quality, should make a pilgrimage to Longleat. Even the most sceptical would be convinced by ocular demonstration that the system of Vine culture there adopted is the correct one; and even the sage writers on the cultivation of the Vine and other fruit trees—the systematic pruning, training, and quarter-of-a-degree-temperature-advocating fraternity—would soon find the castles they have built in the air as model structures for the guidance of the coming age of gardeners ruthlessly shattered, and the film which has obscured their vision quickly cleared away by the rarified air of Longleat. They will also find a fund of information willingly imparted by Mr. Taylor on most topics connected with horticulture.

The various other subjects in the gardens described by Mr. Wright bore witness of the truthfulness of his descriptions. The Roses, Tuberoses, Carnations, Pelargonium (*Guillon Mangilli*), Begonia *Knowsleyana*, and Gesneras are wonderfully well grown and superbly flowered, large masses of which adorned various nooks and corners in the mansion. The plants grown in what appeared to be small Orchid baskets, and which were placed on tables, &c., in the drawing-rooms and state apartments, were perfectly lovely. The simplicity of the baskets, and the surface of the soil they contained being covered with bright green moss, much enhanced the beauty of the plants, and made them appear as gems amid the magnificent decorations and works of art by which they were surrounded.—JOHN WILLS.

PRIMULAS IN SMALL POTS.

AT potting time in the summer some of our Primulas were shifted from 3-inch to 6-inch pots, and others were allowed to remain in the 3-inch pots, as we had too many to find large pots and room for. Those in the small pots were grown with the others. Lately many of both lots have been blooming, but those in the smallest pots have far surpassed those that were shifted both in the size of their trusses and blooms; in fact, we never saw Primula flowers better than those in the small pots, and for

placing in small vases in rooms they are most convenient. Many Primulas, especially during such damp weather as we are having, are very liable to decay at the base of the stem, but in small pots they rarely show any indication of this, as the pots are crowded with roots, and the plants do not suffer from being over-watered, as plants in large pots with few roots often do. The small plants were the first to come into flower, and they will, I think, be the last to go out, and altogether we are so much pleased with them that I cannot help asking that the plan be generally tried next year.—M.

EXTENSION VERSUS RESTRICTION OF TREES AND VINES.

I AM pleased to see this question discussed by your various correspondents who write on "Theories on Vine Culture," also by "JOHN BULL," who caricatures restriction and its inconsistencies, and places the matter in a nutshell when he shows that Pear trees which have the strong shoots cut back to 9 inches or a foot have to be root-pruned also to keep them from doing the very thing that the cutting back is sure to cause—i.e., making a mass of useless wood, and that neither practice is often necessary under proper culture. With regard to Vines, it is for recognised advocates of the cutting down of good young rods to the bottom to come to the rescue of their disciples. I will put it thus, and be glad of an answer. Supposing we have a good young Vine cane one year old stopped at the top of the rafters, and the laterals restrained within reasonable bounds so as to produce fairly good buds and a well-ripened cane, what reason exists for cutting the same down to within a foot of the ground? Is such a practice necessary on the score of either lengthening or strengthening the Vine the seasons immediately following, and if so, why? —EXTENSION TRAINER.

AN AMATEUR'S HOLIDAY.

To one imbued with a real love for flowers, the advice so often offered in the columns of the Journal to go and see gardens where the favourites are tended by skilful and loving hands would seem to be wholly unnecessary. Flower shows afford pleasure and evoke wonder, or they may, as they ought, incite to praiseworthy effort and laudable emulation. But, although valuable hints in many departments can there be gleaned by an intelligent observer, such displays can in very limited measure teach us how to effect similar results. For that purpose we must visit the gardens whence come these products of cultural skill. I will now offer to your readers a few jottings of a ramble such as I have annually indulged in for some years, when release from professional duties affords opportunity of seeing old friends and forming new acquaintance.

Circumstances prevented me visiting the great Show at Manchester, and thus I missed what would have been to me not the least of its attractions, Mr. Kelway's display of Gladioli. Our Edinburgh and Glasgow Shows followed. May I offer a few remarks on these? In the former was much that was notable; but there were three exhibits not to be soon forgotten. First, the Rose from Messrs. Cocker, Aberdeen; second, the two lovely baskets of Primula capitata exhibited by Messrs. Dickson & Co., Edinburgh; and third, specimens of a pretty plant from the Edinburgh Botanic Gardens, a recent importation from India, where it was found at an elevation of 4000 feet. This was a little Golden Primula, *P. floribunda*. Among all its more imposing surroundings that little beauty fixed my attention. The Glasgow Show eclipsed that at Edinburgh in the extent and quality of florists' flowers. While in the latter there was not, as far as I recollect, a single Pansy, magnificent specimens both of the Show and of the Fancy varieties were present at the former in hundreds, and alone were worth going far to see. Dahlias, Asters, and Marigolds were better at Glasgow; the French varieties of the last were numerous and really splendid. There, too, Gladioli were superior. But in neither exhibition were these at all equal to what we have seen in favourable seasons. I believe the fact that many more amateur florists are to be found in the west accounts in great measure for the very marked superiority of the Glasgow Show as regards the excellence and abundance of florists' flowers.

Next morning I started for Belfast, the attractions of which have more than once drawn me to the Emerald Isle. Accounts of visits to several notable manufacturing and other interesting establishments, or of a run to the Giant's Causeway, would not be appropriate to your pages. No one could fail to admire the wooded beauty of the country at many points on the route to the last. Belmont Nursery claimed early attention, where I spent an hour with Mr. Hugh Dickson, whose Roses have so often delighted visitors to Scottish shows. Heavy demands immediately previous to my call had

rendered first-rate blooms scarcer than I had seen them on former visits, but excellent plants were there in many thousands, great numbers of which will, as usual, find their way to the gardens of Scotland. A collection of Gladioli, extensive and varied rather than select, well-filled houses of table and other plants, and a capital display of Dahlias, were among the numerous features of these extensive and attractive grounds.

Next day a short run to Newtonards took me to the establishment and to the genial welcome of another hero of a hundred Rose fights, Mr. George Dickson, now head of the firm of Alexander Dickson and Son. High expectations founded on previous experience were here fully realised, and a walk through the beautiful nurseries disclosed material in ample abundance for meeting the extensive demands. A large house filled with Tea Roses in pots in splendid health is worthy of mention, and intended efforts in raising new varieties of this class will doubtless, in such hands, be heard of by-and-by.

Calling at the Belfast Botanic Gardens, I formed the acquaintance of the Curator, Mr. McKimm. The *Bougainvillea glabra*, already noticed by a correspondent, was very fine. The wire trellis, 30 feet by 20 feet, which this fills, is, when the plant is not in flower, drawn up near the glass, and the stage below used for other purposes. Mr. McKimm stated that, however splendid the display was when I saw it, the want of sunshine during the season had rendered the bloom much less profuse this year than usual. The Gardens are well worth seeing, and would under other circumstances be much more so. But I confess that to find them more of a people's recreation grounds than strictly Botanic Gardens rather surprised me. Ground for lawn tennis, and a large dancing hall in course of erection, seemed to me incongruous with the purposes of such institutions, and an unfavourable comparison with our well-appointed Botanic Gardens in Edinburgh was inevitable. No skill, backed by whatever enthusiasm, can compensate for the absence of essential facilities; and to have beds trodden down, plants uprooted, and tallies converted into boats in the adjoining ponds by troops of thoughtless or mischievous children, are conditions unfavourable to the proper maintenance, and adverse to the object of botanic gardens, as that term is usually understood.

Duty called me but too soon away from the kindly folks of Ulster. Returning by steamer to Stranraer, I there visited one whom I already knew. The Roses of Mr. Thomas Smith are no strangers to Scottish florists. Here I saw a good many of the new varieties, English and foreign, in flower, and an abundant supply of excellent material awaiting the season for dispersion. These nurseries, as well as those of Belfast and Newtonards, are well stocked with all the requisites for a large and flourishing business in all departments.—A NORTHERN AMATEUR.

(To be continued.)

ALEXANDRA PALACE CHRYSANTHEMUM SHOW.

DECEMBER 9TH TO 13TH.

EARLY-FLOWERING varieties of Chrysanthemums are now by no means scarce, and the chief efforts to prolong the season of these easily grown and attractive plants must be directed towards obtaining varieties flowering after the majority have passed their best. It was with the object of showing what can be done towards this end that an exhibition was arranged to take place at the Alexandra Palace at such a late period; and though the display produced was not extensive, and neither plants nor blooms were of remarkable excellence, yet most of the exhibits were better than many expected. With scarcity of materials it is not easy to make an elaborate display, but with the addition of some Tree Ferns and other specimens a pretty arrangement was produced under the superintendence of Mr. J. Forsyth Johnson.

Of the seven classes provided for specimen plants only three were represented, and in these the competition was very limited. For eight Pompons Mr. Butcher, gardener to R. A. Glover, Esq., The Priory, Barnet, was placed in the leading position with dwarf fairly well-flowered compact specimens, Fanny, Marie Stuart, and La Vogue being the most noteworthy varieties. The same exhibitor had the only collection of six Pompons, not in quite such good condition as the others, but with numerous blooms. Antonius, Andromeda, St. Michael, and La Vogue were fair. Mr. J. P. Kendall, Roehampton, Surrey, had the only three standards, gaining the first prize with Dick Turpin and Julia Lagravère.

Cut blooms were more largely shown, and in all the leading stands they were neat in form, though small. The best twenty-four large-flowering varieties were staged by Mr. J. Hill, gardener to A. Savory, Esq., Potter's Park. These included fair examples of Dr. Masters, Princess Teek, Lady Slade, Hero of Stoke Newington, Christine, and Baronne de Prailly. Mr. Kendall followed with less regular flowers, but Striatum was well shown. Mr. Butcher took the leading position with eighteen blooms, John Salter, Mr. Gladstone, Lady Slade, Venus, and Jardin des Plantes being especially noteworthy for their substance. Mr. W. E. Clark, gardener to A. Nagle, Esq., Bijou Cottage, Kingston,

was adjudged second honours for fresh bright blooms, Fulton, Yellow Dragon, and Ne Plus Ultra being the best. Messrs. Clarke and Steward, Longford Park, Malden, were the prizetakers with collections of twelve, both contributing moderately good blooms. Pompons were not of first-rate quality; but a creditable stand, twelve Anemone varieties from Mr. Kendall, deserves notice. King of Anemones, Lady Margaret, and George Sands were the leading varieties.

In addition to the Chrysanthemums were the following—A beautiful group of Primulas and Pelargoniums from Messrs. H. Cannell & Sons, Swanley, a group of succulent plants from Mr. Boller, and several collections of large Gourds.



At a General Meeting of the ROYAL HORTICULTURAL SOCIETY, held on Tuesday last, Major F. Mason in the chair, the following candidates were elected Fellows—viz, J. H. Mangles, Mrs. Edric Bayley, Mrs. Wm. Bevan, Miss Mary Catherine Browne, The Lady Hothfield, Edward Mawley, F.M.S.; Charles Pigott, Mrs. James Travers.

— THE Committee of the FARNINGHAM ROSE AND HORTICULTURAL SOCIETY, at a meeting held at the Lion Hotel on Monday last, decided to hold their Exhibition next year on Saturday, July 1st. A liberal schedule is in course of construction.

— A CORRESPONDENT who does not favour us with his name and address, has sent us the following note relative to the late DR. DENNY—

"The *Journal of Horticulture* has not a word to say respecting Dr. Denny now he is no more. He certainly did a good deal for one branch of horticulture and deserves some notice."

If our critic will refer to page 474 of our issue for November 24th he will, perhaps, admit his mistake, as he will find there a reference, however imperfect, to our much-lamented friend and earnest co-worker in the cause of horticulture.

— AT a recent meeting of the chief shareholders and directors of the HULL BOTANIC GARDEN some considerable reductions in the expenses were proposed to meet the rather heavy deficiency. It is suggested that they should engage a man as Secretary and Curator at a salary of £100 per annum, the house formerly occupied by the late Mr. Niven to be let. This was opposed by several influential members, and it was hinted that such a course would be extreme. Unquestionably the prospects of the Society appear to be far from encouraging.

— A CORRESPONDENT informs us that some very fine PRIMULAS are now flowering in the gardens of A. M. Duncombe, Esq., The Cottage, Scarcroft, Leeds. The plants, we are informed, are 18 inches in diameter and the same in height, and many of the flowers exceed 2½ inches in diameter. One of these has been sent to us, and it is remarkable for its size and substance, while the colour is very bright. The variety is Carter's Carmine Beauty, and beautiful it undoubtedly is; in fact, we never saw a finer flower.

— WE are informed that "the decorations on the grand staircase, the principal corridors, and the great hall which served as a temporary ballroom on the occasion of the recent ROYAL VISIT TO LONGLEAT, were entrusted to Mr. Wills, and that a plentiful supply of the large Palms, Tree Ferns, Dracenas, &c., from the establishment of the General Horticultural Company were made to do duty. Many of the plants were splendid specimens; they were tastefully arranged, and it is questionable if they ever showed to better effect than they did in the lofty apartments of this venerable and noble building." Our correspondent, who was present at Longleat during the festivities, also

obliged us with an account of the luncheon in the vinery, but a description of this, sent by Mr. Wills, was already in type (see page 538) when the letter in question reached us, and it is consequently not necessary to insert it here.

— MR. A. PETTIGREW, The Gardens, Cardiff Castle, Cardiff, informs us that his foreman, Mr. John Lindsay, has been appointed gardener to the Earl of Gainsborough, Exton Park.

— PARTS 31, 32, and 33 of "FAMILIAR GARDEN FLOWERS" (Cassell, Petter, & Galpin), contain coloured plates of the York-and-Lancaster Rose, Lobelia Erinus, the single Stock and Jasminum nudiflorum, the Indian Pink and blue Sage, with the interesting, descriptive, and historical particulars concerning each plant from the pen of Mr. Shirley Hibberd. Parts 54, 55, and 56 of "FAMILIAR WILD FLOWERS," published by the same firm as the above, give coloured illustrations of the Yellow Rattle, the Hedge Calamint, the Dove's-foot Cranesbill, the Creeping Thistle, the Melancholy Thistle, and the Lily of the Valley, all but the last being fairly well executed. The accompanying letterpress, however, furnishes as much popular information as could be desired about each plant.

— LAST year at this time we received from Messrs. Eyre and Spottiswoode, the Queen's Printers, a packet of CHRISTMAS CARDS, which we noticed in this Journal because of their artistic excellence and the beauty of their execution. They consisted chiefly of floral subjects, and as such called forth our admiration. This year we have received another packet equal in every respect to the former, but the subjects are more varied. And speaking of variety, we have before us a catalogue of these annuals, which contain upwards of five hundred different designs.

— WE have another packet from Mr. Arthur Ackermann of Regent Street, the artistic execution of which calls for the highest commendation. There are three series—Fairylane scenes; the Naval, Military, and Volunteer series consisting of some sentimental and some highly humorous subjects; and the Sporting series, which treats of hunting, coaching, and steeple-chasing in various moods.

— FROM Mr. Ackermann also comes a packet of Christmas cards issued by Messrs. L. Prang & Co. of Boston, U.S.A., in which flowers play a leading part, and which are very faithfully and beautifully executed.

— A NEW serial, of which the first part is now before us, has been issued by Mr. Eliot Stock, entitled "THE BIBLIOGRAPHER, a Journal of Book Lore." To the student, the bibliophile, and the antiquary this will be an acceptable monthly, for it treats on everything relating to books, printers, and authors since the art of printing was discovered. The first is a very interesting part, and contains an account of the Sunderland library, which is now in the course of dispersal by Messrs. Puttick & Simpson.

— AMONG the most useful annuals which appear at this season we know of none that are more useful than LETTS' DIARIES. A set of these is now before us, supplied by Messrs. Letts & Co., and consist of every size and form, from the small pocket book to that of the folio-sized "Rough Diary" for the office desk. Those most adapted for the merchant's or the library table are No. 8 and No. 13. The former supplies a vast amount of information, and is quite a reference book for commercial purposes, and the latter is well adapted for the study.

— WE have also before us the last issue, part 22, of LETTS' POPULAR ATLAS, of which we have frequently spoken highly, and this number is in no way inferior to any of its predecessors.

— ONE of the extraordinarily sudden CHANGES OF WEATHER that we ever remember to have noticed occurred in the metro-

politan district last week. On Thursday the 8th inst. the day was bright, clear, and spring-like—one of the finest December days ever known. Rain commenced falling at night, and continued for many hours; the next day, Friday, being one of extraordinary gloom, and of a kind not often experienced even in London. The whole day was as dark as night, and lamps were burning indoors and out the same as at night. This was the result of a fog, which was so thick as to completely obstruct the rays of the sun, and the result was almost total darkness. Yet the fog in many places did not reach the earth, hence there was little or no discomfort beyond that incident to the absence of light. A light, silent, oil-like rain fell during the early period of the day, its peculiar softness being the result, no doubt, of passing through the fog that hung like a thick canopy over the City. The next day snow fell thickly for some hours, but melted as fast as it touched the ground. The weather has since been unsettled, and not favourable for planting and ground work generally.

— We learn that growers in California have begun to turn their GRAPES into raisins. Three years ago no raisins were produced, now the crop amounts to 150,000 boxes, and is worth half a million of dollars.

— We have received further communications relative to PLANTS IN LARGE AND SMALL GARDENS, and as we must either publish all or none of these, we choose the latter alternative. We fail to see in what manner the further discussion of a subject of this kind can be profitable. The truth of the matter is that some "single-handed" cultivators grow both hard and softwooded plants admirably; while, on the other hand, we have seen some of the finest examples of culture in the largest gardens in the kingdom. If specimen plants are needed there is no lack of men who can produce them if adequate means are provided; and whether a man does the work himself or instructs another to do it, obviously cannot affect his position as a cultivator.

— At the next meeting of the METEOROLOGICAL SOCIETY to be held on Wednesday, the 21st inst., at 7 P.M., the following papers will be read—"The Rainfall of Cherrapunji, Assam," by Professor John Eliot, M.A., F.M.S.; "On the Meteorology of Cannes, France," by William Marcet, M.D., F.R.S., F.M.S.; "The Principle of New Zealand Weather Forecasts," by Commander R. A. Edwin, R.N., F.M.S.; "Report on the Phenological Observations of 1881," by the Rev. T. A. Preston, M.A., F.M.S.

SALVIA SPLENDENS.

"A NORTHERNER'S" remarks on *Salvia splendens* in your issue of the 1st inst., and his mode of cultivating it, has induced me to make a few remarks on its culture here during the past summer. In the spring we struck a batch of cuttings, and potted them and treated them similar to bedding plants, and when bedding-out time arrived we planted them on a sunny border in the kitchen garden about 2 feet apart, giving them water as required with an occasional supply of liquid manure. They grew very freely and were pinched-in so as to form well-balanced heads. At the end of August they were lifted and placed in 10-inch pots and arranged behind a wall with a north aspect until they were established. Towards the end of September they were placed under glass, and at the time I now write (December 5th) they are fine healthy plants, well furnished with good foliage. They are about 3 feet or 4 feet in diameter. On one plant the spikes of bloom are 112 in number. These plants are very showy at this dull time of the year when bright flowers are scarce and valuable.

By this plan of culture much time and labour is saved in watering the plants. Treated in the way described, which will, I think, compare favourably with those grown in pots. They succeed best in a moderately warm house with abundant ventilation in fine weather.—G. R. ALLIS.

OSMUNDA PALUSTRIS.—"R. I. L." writes that this is one of the best Ferns for furnishing purposes. While extremely graceful it stands well, and the beautiful green of its pinnules is contrasted with the red colour of the stems of the fronds, which produces a

lively effect. It is more graceful than *O. regalis*, and is prettier, but it must be regarded as a variety of that plant. Though distinct for garden purposes it is not allowed to be a variety by some botanists.

ROYAL HORTICULTURAL SOCIETY.

DECEMBER 13TH.

THE vegetables in the competition for Messrs. Carter & Co.'s prizes formed the chief feature at this meeting, though plants were also well represented, the Council-room being fully occupied. Messrs. Veitch's, Bull's, and Cannell's groups were especially attractive. The weather was, unfortunately, extremely dull, yet this did not deter the members of the several Committees from assembling in large numbers.

FRUIT COMMITTEE.—Harry J. Veitch, Esq., in the chair. Mr. Wallis, The Gardens, Keele Hall, Staffs, sent fine examples of Grapes Barbarossa, Mrs. Pearson, Alicante, Golden Queen, Museat of Alexandria, and Gros Colman, two bunches, to which a cultural commendation was awarded. Mr. G. R. Alhs, The Gardens, Old Warden, Beds, sent three bunches of Pearson's Golden Queen Grape, remarkably well grown and of excellent flavour, but the Committee are of opinion that this Grape is inferior to Museat of Alexandria, which ripens at the same season. Mr. Fisher, Bangor Castle Gardens, Bangor, Co. Down, sent a large bunch of Gros Colman Grape, which had been much rubbed in transit. Messrs. Laing & Co., Forest Hill, sent three good bunches of Alicante Grapes, to which a letter of thanks was awarded. Mr. Wilson, gardener to Lord Fortescue, Castle Hill, North Devon, sent four handsome Smooth Cayenne Pine Apples, weighing in the aggregate 24 lbs. A cultural commendation was awarded.

Mr. Thomas Laxton, Girtford, Beds, sent a seedling Apple called Henry Webb, but not considered superior to other kitchen Apples in cultivation. Missouri Pippin, an American Apple, was not thought worthy of any commendation. A seedling Apple, raised in Canada, was sent by Mr. Batters, Hill House, Stanstead, Herts, but it was not considered to be possessed of any merit. Mr. Sidney Ford, Leonardlee, Horsham, sent a seedling Apple called Margaret Henrietta, which was passed. Rev. G. M. Straffain, Tillington Rectory, Peterworth, sent some dishes of Apples, to which a letter of thanks was awarded. Mr. R. Gilbert, Burghley Gardens, sent four brace of Cucumbers—Frost's Prolife, Veitch's strain of Telegraph, Montrose Seedling No. 1, and Montrose Seedling No. 2. A cultural commendation was awarded. Mr. W. Sutton, gardener to J. S. Sassoon, Esq., Ashley Park, sent a brace of Cucumber Model, very skilfully grown, to which a cultural commendation was awarded. Mr. Gilbert also sent specimens of Barr's Large White Cos Lettuce, to which a letter of thanks was awarded. Messrs. James Carter & Co. sent a dish of New Golden Queen Onion, for which a letter of thanks was awarded, and it was ordered to be grown at Chiswick. Mr. Findlay, gardener, Wroxton Abbey, Banbury, sent a dish of Wroxton Onion, raised between White Spanish and Williams' Improved. It was ordered to be grown at Chiswick. Mr. Ewart, The Gardens, Aphorpe, Wansford, sent three dishes of Onions—Nuneham Park, Improved Reading, and Magnum Bonum, remarkably well grown, to which a cultural commendation was awarded. Messrs. Cutbush of Highgate sent good examples of Brussels Sprouts from their stock which they have grown for forty years; they were highly approved, and received a letter of thanks. Mr. Findlay also sent some Brussels Sprouts, but they were considered too large.

Three sorts of Celery were received from the Society's Garden at Chiswick—the Winchester Red, Williams' Matchless, and Leicester Red. The first received a first-class certificate, and was grown from seed supplied by Messrs. Rantley & Silverloek. Mr. Lyon, gardener to Sir Edmund Scott, Bart., Sundridge Park, Bromley, sent a fine dish of Mushrooms, for which a cultural commendation was awarded. The same award was given to Mushrooms and spawn exhibited by Mr. John F. Barter, Laneefield Street, Harrow Road. Mr. Perkins, gardener to Lord Henniker, sent Dell's Hybrid Melon, which was very good for the time of year. A letter of thanks was given. Mr. Lyon also sent a specimen of Parsnip 4 feet 2 inches.

MESSRS. J. CARTER & CO.'S PRIZES FOR VEGETABLES.—The valuable prizes offered by Messrs. Carter induced good competition, seven fine collections being staged. It is worthy of remark that the exhibitors were not restricted as to the particular varieties to be shown, twelve dishes being stipulated for. Mr. J. Austin, The Gardens, Ashton Court, Bristol, secured the leading position with a handsome collection, clean, even, and well grown. Some of the most noticeable were Hathaway's Excelsior Tomatoes, King of Cauliflowers, Carter's Maltese Parsnips, Carter's Scarlet Intermediate Carrots, Improved Reading Onions, Carter's Jersey Lily Turnips, and Schoolmaster Potatoes. Second honours were adjudged to Mr. S. Haines, The Gardens, Coleshill House, Highworth, for good Carentan Leeks, Autumn Giant Cauliflower, Carter's Perfection Brussels Sprouts, Tender and True Cucumbers, and Carter's Naseby Mammoth Onions. Mr. R. Phillips, The Deodars, Meopham, was a very close third with well-grown vegetables. Mr. R. Gilbert, The Gardens, Burghley House, Stamford, was fourth; Mr. R. Lloyd, Brookwood, fifth; and Mr. Goldsmith, The Gardens, Hollenden, Tunbridge, sixth; all staging very creditable samples. Messrs. Carters also contributed a fine collection of vegetables, filling one side of the approach to the Council-room. Potatoes were largely represented, including samples

of the leading varieties; Kales, Cabbages, and others being similarly well shown.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. Messrs. James Veitch & Sons, Chelsea, contributed a beautiful group of new plants and Cyclamens. The handsome *Jasminum graeillimum* certificated last year was again shown in fine condition, bearing many close umbels of its neatly formed, powerfully fragrant, pure white flowers. Half a dozen plants of *Begonia socotrana* were also exhibited, the flowers being very bright rosy pink, of good form, and abundant. The bright green peltate leaves are alone very attractive, being so distinct from most other Begonias. The Cyclamens were distinguished by their vigorous compact habit, large flowers, and purity and brightness of the colour, though the bright tints could not be seen to the best advantage owing to the dull weather. Several Orchids and other plants were certificated and are described below. Mr. W. Baldwin, Hassocks Gate, sent a basket of his double Mignonette, with fine spikes of flowers, well showing the very distinct character of the variety. He also sent very fine flowers of *Bouvardia Dazzler*, which have a light-coloured tube and bright scarlet lobes. Mr. W. Bull, Chelsea, exhibited several new plants, but by far the most notable was a group of the double white *Bouvardia Alfred Neuner*. The plants were in small 60-size pots, and some were bearing four or five compact trusses of flowers, very neatly formed and pure white. Among other plants were *Cælogyne barbata* with spikes of whitish flowers with brownish bearded lips; *Billbergia formosa*, a species with brown leaves barred with white, the flowers being purplish and the bracts red; and *Odontoglossum polyxanthum pictum* is a variety with large flowers blotched with ochroleate. A vote of thanks was accorded to Mr. J. Douglas, Loxford Hall Gardens, Ilford, for a plant of *Calceolaria Burbridgei*, somewhat suggestive of *C. Pavonii* in the form and colour of the flowers and in the form of the leaves, though these are smaller than in the species. Mr. C. Turner, Slough, had a group of Tree Carnations, including several very handsome varieties. Duke of Albany has large dark scarlet flowers of good form; Firefly, smaller but very dark scarlet; Negro, fringed edge, maroon; and Brightness, vivid scarlet.

Messrs. H. Cannell & Sons, Swanley, Kent, staged a group which added largely to the interest of the meeting. Double white and blush Primulas were represented by over two dozen handsome plants most profusely flowered. A stand of fine single Zonal Pelargoniums, the flowers being of remarkable size and substance; indeed, Mr. Cannell has scarcely shown better samples at this time of year. Especially fine was *Czarina*, a variety with white flowers of good form, and over 2 inches in diameter. The double Pelargoniums were similarly good, including more than a dozen varieties. A stand of *Salvia Veitchei* and *S. rutilans* flowers was greatly admired, the bright red of the latter contrasting well with the rich blue of the former. A vote of thanks was accorded to Mr. Cannell. Mr. Herbst, Kew Nurseries, Richmond, exhibited six pots of Lily of the Valley, each with about twenty large spikes of flowers. Mr. Anthony White, Woking, had a box of Primroses, representing many good varieties. Messrs. J. Carter & Co., High Holborn, had a group of their blue *Primula Holborn Gem*. The flowers were large, of good form, and were marked by a blue shade, that unfortunately, owing to the darkness of the morning, could not be seen to the best advantage. In habit the plants are very compact. Mr. R. H. Vertegans, Edgbaston, Birmingham, exhibited plants of *Nicotiana tubiflora*, a form with long pure white flowers; *Phlox Miss Robertson*, a very neat variety with round flowers, pure white in close heads; also plants of *Sisymbrium millefolium* which was recently certificated at Birmingham, and described on page 502. Mr. H. B. Smith, Ealing, Oxon, had plants of a fine *Cyclamen Prince of Wales*, with very large rich deep red flowers with broad petals. A very beautiful group of plants was contributed from the Society's Chiswick Gardens; Poinsettias, Primulas, Orchids, and *Begonia insignis* forming the chief features. Mr. John Odell, Goulds Green, Hillingdon, staged a group of healthy well-flowered Primulas; Queen Victoria, bright deep red; Alba Magnifica, white, large flowers, and Rubra Improved being the varieties.

First-class certificates were awarded for the following plants—

Calanthe bella (Veitch).—A beautiful hybrid between *C. vestita* and *C. Turnerii*, with a spike 2½ to 3 feet long. The flowers are large, 3 inches or more in diameter, with acute bluish-tinted sepals and petals, a broad lip of the same hue, having a rich crimson blotch in the centre.

Masdevallia ignea Massangeana (Veitch).—Similar to the well-known type, but the flowers appear slightly darker in colour.

Cælogyne barbata (Bull).—An attractive and distinct Orchid, having the flowers in drooping spikes. The sepals and petals are white, of semi-transparent texture; the petals much narrower than the sepals; the lip has the two lateral lobes white, and the centre brownish and deeply fringed.

Carnation Negro (Turner).—A variety of the Tree section, with large full flowers, very deep maroon, the edges neatly fringed.

Carnation Duke of Albany (Turner).—Another of the same type, with very large flowers of good form and deep scarlet in colour.

Heliotrope White Lady (Cannell).—A beautiful variety with remarkably large corymbs of white flowers. The fragrance is very sweet and powerful. The leaves also are large and neat in form.

Phalangium elegantissimum (Williams).—A Liliaceous plant allied to

the Anthericums, with narrow leaves 9 inches to a foot long, tapering to the apex, white central streak, and green margin. Attractive and useful for decorative purposes.

Oncidium Forbesii Carderi.—A certificate was awarded to Mr. Read, The Gardens, Moat Mount, Mill Hill, for a plant of this very handsome variety, which, however, some members of the Committee thought was inaccurately named. The flowers were very large, 3 to 3½ inches in diameter, deep rich brown in colour, with a crisped narrow yellow margin.

SCIENTIFIC COMMITTEE.—*Lilies Attacked by Larva of Brachycerus sp.*—Mr. McLachlan exhibited larvæ received from Mr. G. F. Wilson, which eat into the centre of the bulbs of Lilies.

Cocoa Nut Attacked by Larva of Hylocatus sp.—He also showed remarkable larvæ with indurated joint at the head, which penetrates the soft wood of Palms, and observed that the European species attacks hardwooded trees, as Firs.

Proliferous Cone.—Dr. M. T. Masters exhibited a cone of *Abies Douglasii*, in which the bracts were foliaceous, but the seed scale partially atrophied, as is usually the case in proliferous cones. He contrasted this with a proliferous state of *Sciadopitys verticillata* (see fig. 46, Veitch's "Manual of Coniferae"), in which the seed scale became foliaceous, the bract remaining normal. The importance of this latter specimen in relation to the nature of the so-called leaves of *Sciadopitys* and of the seed scale of *Abietinae* was commented on.

Embryo Bud of Oak.—Mr. W. G. Smith exhibited a specimen about 1½ inch in diameter. It was removed from beneath the bark. Such are very common in Beech trees, in which they vary from the size of Peas to that of one's fist.

LECTURE.—The Rev. G. Henslow took for the subject of his lecture the "Diversity of Means Utilised by Nature to Secure Similar or Identically the Same End." He illustrated it (1), by the process of "doubling" flowers; (2), by a peculiar method of securing the fertilisation of flowers by means of a lever constructed out of the stamens; and (3), by various methods of colorisation—different organs being coloured, but which secure the same object of rendering the flower attractive; (4), methods of entrapping insects to digest them.

The process of doubling varied in different flowers—thus, the pistil may remain perfect, but the petals and stamens (converted into petals) multiplied, as in Carnations, &c. The pistil may become foliaceous, and the rest of the flower all petals as before. Such occurs in the double Cherry. The petals alone may be multiplied, the stamens and pistil remaining perfect—he had found this in double Stocks; or the whole flower may be converted into a dense ball of more than fifty petals, as in double Wallflowers. Again, a double flower may consist of a repetition of calyx and corolla over and over again as in Rock Rose. Lastly, double Poinsettias are merely a multiplication of bracts, and double Composites a conversion of disk florets into ray, as in Chrysanthemum, Daisy, &c. The peculiar process of fertilisation described was that of the *Salvia*, and the lecturer showed that *Calceolaria Burbridgei* (exhibited) illustrated the same thing; while a similar method obtain in a widely different family of Gingerworts.

As illustrations of coloured organs, the lecturer exhibited Poinsettias and *Euphorbia jacquiniæfolia* as showing how bracts could mimic a true flower. Everlastings were another example. In many cases it was the calyx, as in Anemone and Marsh Marigold.

A *Nepenthes* illustrated a carnivorous habit, and the lecturer made some observations on its structure and the various methods adopted by other plants for catching insects, and alluded to Mr. Francis Darwin's experiments on *Drosera*, which clearly showed that the chief benefit lay in the increase of seed.

LUCULIA GRATISSIMA.

SELDOM is a large plant of the above to be seen in satisfactory condition. How to account for this I do not know. Its propagation, I must confess, I cannot yet master after many and varied trials. Plants are, however, readily obtained from the trade, and therefore its propagation should not prevent its being more generally planted. I am afraid its beauty and fragrance are not sufficiently known, or it would find a permanency in the majority of large conservatories. It rapidly forms a good bush when planted out. Its cultivation in pots is rather difficult, as it does not do well without abundance of root room. It is a splendid plant for covering a wall, and is even better adapted for this than growing as a bush; however, the latter can be accomplished without much trouble. When grown as a bush its flowers appear to much greater advantage than when grown against a wall. A good plant is a most conspicuous object in a conservatory at this season of the year; it not only, when in flower, fills a house with fragrance, but quickly arrests the attention of visitors. A plant carrying over three hundred trusses open and to open, is a sight when once seen not easily forgotten. Small plants planted out from 6-inch pots are capable of doing this in about six years, thus showing the rapidity with which it grows when once established.

The *Luculia* will endure close pruning, and can therefore be

kept within due bounds and to suit the position in which it may be planted. When well pruned the growths are stronger, more sturdy and compact, and will carry in consequence larger trusses of flower than if pruning is not resorted to.

The treatment which suits Camellias when planted out suits this plant well. If the house in which it is grown can be closed early with a little sun heat while the plants are making fresh growth all the better. After growth is completed Lueulias, like Camellias, will do with cooler treatment. While growing abundance of water should be given both to the roots and on the

foliage. The temperature should not be allowed to fall too low in winter. It will do well in any structure ranging from 40° to 50°, according to external conditions.

The soil I have found most suitable is a mixture of loam and peat (the latter predominating), with plenty of coarse sand and a little charcoal to keep the soil porous.

Thrips is the greatest enemy to this plant; in fact, I have never seen any other insect infest it. Care must be taken never to allow the insects to become established, or they soon do much injury to the plants. They are generally kept in check by liberal



Fig. 85.—*ADHATODA CYDONIÆFOLIA*.

syringings; but, if further measures are needed, sponging the leaves with tobacco water is a safe method of extirpating the pest.—SCIENTIA.

ADHATODA CYDONIÆFOLIA.

At one time the genus *Adhatoda* was rather an extensive one, as De Candolle enumerates about sixty species, but Bentham and Hooker admit only six or eight species; the other species being referred to the genus *Justicia*. *Adhatoda cydoniæfolia* may be considered one of the most handsome species of the genus. The woodcut (fig. 85) shows the true character of the flower. The corolla is tubular and divided into two parts; the upper lip is hooded and almost pure white outside, the inner or

under surface is light purple, nearly white; the lower limb is divided into three lobes of a bright purple colour, with a narrow band of white in the centre towards the throat. The flowers are borne in clusters at the termination of each shoot, and are extremely showy, the plant continuing for several weeks in good condition. It is a plant that is easily cultivated, and is worth a place in any collection of plants, and what adds to its value is that it blooms at a season when flowers are scarce. Perhaps its one and only objection is that it has rather a straggling habit of growth, but the way I have overcome this objection is to train it under the roof or up a pillar; in such positions it appears quite at home. The best time to propagate it is in spring when it has commenced growing. The cuttings strike very readily in a little bottom heat,

and should be potted as soon as rooted in a light rich soil. As soon as the pots are filled with roots the plants must again be potted, and when established the tops may be pinched to induce them to branch. After this they may either be grown on in larger pots, or planted out in a border in the stove and trained up a pillar or under the roof. *A. cydoniaefolia* is a native of Brazil, and therefore requires a stove temperature or an intermediate house. My plants have flowered profusely this autumn in a temperature of about 60°.—W. K.

SCRAPS ABOUT FRUIT.

JULES D'AIROLLES PEAR.—This is not by any means much grown, but deserves to be more extensively known. I have it against an east wall on the Pear stock, on which it is very healthy, fruiting when many other sorts fail; the fruit much resembles Napoleon, but is larger and longer, and carries more colour. It is in season in November and December, and is very juicy, well and briskly flavoured, resembling in that respect Forcille.—G. ABBEY.

STRAWBERRIES FLOWERING.—Have any of your correspondents seen at the present season, in the open ground, Strawberries in full flower, just as is seen in summer? The variety President is a mass of bloom. This is grown here largely, being useful for forcing as well as for the garden, and I agree with many gardeners in considering it the best of all the year-round Strawberry. The plants are robust and healthy, and in their third season of growth. The blooms will be decidedly cut down by the first hard frost. No doubt the past mild weather has caused their flowering so prematurely.—H. C. OGLE, *Chilworth Manor, Hants.*

COMTE DE LAMY PEAR.—In our light soil this is one of the few October Pears that succeed on the Quince, the tree being healthy, forming a moderate-sized compact pyramid. It crops well, and, though the fruit is only medium-sized it is very rich and juicy with an agreeable perfume, resembling Seakale in that respect. The latter though small is a first-rate sort, succeeding admirably as a pyramid on the Pear, forming a good-sized fruitful tree.—YORKSHIRE.

THE BEST TWELVE KITCHEN APPLES.—Duchess of Oldenburg, Keswick Codlin or Lord Suffield, Lemon Pippin, Golden Noble, Cellini, Small's Admirable, Warner's King, Nelson's Codlin, Tower of Glamis, Wormsley Pippin, Hanwell Souring, Gooseberry—twelve and one over, which is easily disposed of. If you have a light shallow soil discard Lord Suffield, if a deep loam retain it. But whatever may be the nature of your soil you will never have reason to regret planting Keswick Codlin, for I have never seen it suffer badly from canker, as Lord Suffield undoubtedly does. Lemon Pippin may be called in question, but I really do not know why, for it is an excellent cooking Apple. The tree is hardy, grows freely, and rarely fails to yield an abundant crop of fruit—so abundant that the sight of a large tree of it in full bearing is not soon forgotten, and yet I do not remember having met with it in select lists. Of the other sorts it may be said that all of them are remarkable for hardiness, sturdy vigour, and abundant produce of sterling quality. Gooseberry Apple, not Gooseberry Pippin, ought to be grown by everybody for the good keeping qualities of its excellent fruit, which is always left upon the trees till late in October, and is then to be had in good condition from the fruit-room in the following May and June.—SUSSEX.

THE BEST TWELVE PEARS.—Your correspondent "SUSSEX" gives the names of twelve Pears (page 494) which he designates the best, but it is to be presumed he only means in his immediate locality, and with the qualifications he points out in reference to soil, stocks, climate, and experience in treatment. All these and other circumstances conduce to success or failure. However, I merely wish to remark that at our late show here, referred to in a recent number of the Journal, the three judges and your correspondent, who was deputed to assist them, all agreed, from every point of view, the specimens of Beurré Clairgeau were the best in the show of a large number of varieties. The admitted best at last year's show was Doyenné Boussoch. Though there is not much difference in the climate, &c., neither of these are included in "SUSSEX'S" twelve.—W. J. M., *Clonmel.*

PEARS NOT KEEPING.—I noticed what "G. A." said on page 494 under this heading. In regard to Bergamotte Esperen, a Pear which I have been accustomed at the beginning of former years

to place in artificial heat, I am at this time eating it direct from a cold fruit-room in a perfect state of delicious ripeness. Though I never knew it come to table so early, I also never knew it in better condition for the dessert dish. Its usual time is from February to April, and it was therefore only by mere accident that I found it was ripening fast. I make no complaint, as all my crop is, though earlier, excellent. I have, however, been utterly "done" by another Pear—viz., Josephine de Malines. As its proper time is always from February to May I did not pay it the attention of any notice at all. Why look after, or examine, a Pear not likely to be ripe for months? However, when I went and examined the Josephine de Malines, the fruit off two pyramids, the other day, I found them gone too far—from ripeness to rottenness, only a very few being eatable. Not all Pears are thus premature, for Soldat Esperen, a November fruit, is not quite ripe, and will last through this month of December; neither is Napoleon over-ripe. I would note of this fruit that as to flavour it has been overpraised. It is very juicy indeed, but then it is not rich but watery juice. Apples are keeping, as naturally they would, better than Pears, but they are in an unduly forward state of ripeness. In regard to the Malines Pear going off so very soon, I must say that I think part of the reason is that by mistake it was gathered a little too early, whereas those keeping better had their full time on the tree. I should like to know if other cultivators find this true of their Pears. "Hang long keep long" is, I think, a good motto in regard to late fruits.—WILTSHIRE RECTOR.

RENOVATING OLD APPLE TREES—USEFUL VARIETIES.—My experience amongst fruit trees in Cheshire was that of obtaining a satisfactory result from old trees on a clay soil. We first thoroughly drained it and then applied manure heavily near the roots. These measures produced a complete renovation. The best old sorts were Golden Russet, Lord Suffield, Manks Codlin, which we always took care to thin-out freely to induce fresh growth of healthy wood (this year I have seen fine specimens in London offered for sale as Newtown Pippins); Nonpareil, "Winter Virgin," a large rosy-coloured Apple, strong tree with a bushy top, which grew tangled and intermixed across, inside, naturally. Fruit large, very red, which about May turned to a russetty yellow pale colour, most beautiful to eat. We called it Winter Virgin, but it is very similar to Ball's Golden Reinette. Gooseberry, New Hawthornden, and Hawthornden. All standards. Since then, in Montgomeryshire, I planted some of the old sorts. On clay soil Lord Suffield planted with some pieces of charcoal and lime under formed a fine tree—only four years after grafting being loaded with splendid fruit. Hawthornden similar, and Manks Codlin and Stirling Castle were surprisingly fine. I tried other sorts which promise well. Royal Pearmain, Oslin, Wellington (Dumelow's Seedling), John Apple or Northern Greening, and Greenup's Pippin. Golden Winter Pearmain is remarkably fine grown near Tenbury on a red clay soil. I have seen rows of trees covered with splendid fruit—a grand sight.—J. C. ANTROBUS.

HOMELY HINTS ON CHRYSANTHEMUM CULTURE.

OF the popularity of Chrysanthemums there can be no doubt, nor is it difficult to tell why. Opening into full beauty in November, when so much of vegetable life has assumed the bare aspect of winter, amid gathering mists and murky skies they serve to brighten many a home that would otherwise be bare of flowers, and when brought together in large quantities for exhibition we have a scene so bright as to form no unworthy rival of the gayest gatherings of summer. The large exhibition plants are apt to be regarded by the owners of small gardens as a phase of gardening quite beyond their scope. They see the magnificent cut flowers and ask, "What sort of plants are they cut from? How are they managed? and would it be possible for us to produce anything like them in our little conservatory without the aid of a professional gardener?" Assuredly it would, as I have seen it done for several years in a small garden not far from here—so well done, that there are always plenty of flowers at this time of year of the highest excellence both of size and form.

Now in this garden there is no skilled gardener—only an ordinary labourer—nor has the owner much technical knowledge of gardening. He therefore wisely confines his efforts to the management of a few flowers of easy culture, and of which he has sufficient variety to render his little conservatory gay throughout the year. In this he is most successful, as I have often seen. The stages are always filled with clean healthy plants, but they are never crowded, and the only season of the year when the neat trim aspect of the house is broken up is when the huge Chrysanthemums are brought in, some three or four dozen in number, and are ranged in single

file upon the floor around the central stage, where they remain till the flowers fade, and then as soon as enough cuttings are secured for the next season the old plants are thrown away.

The cuttings are inserted singly in small pots filled with rich loam, and are placed in a cold frame from which frost is excluded by a covering of litter in severe weather, but light and air are given on every favourable opportunity. They make roots slowly but surely, very few ever failing; and when the roots reach the sides of the pots the plants are shifted into larger pots, care being taken to supply water when necessary, and to expose them to the air as much as possible. As the weather grows warm they are again shifted into the large pots in which they are to flower, and are stood out of doors upon a hard level space near a sewage pump. Henceforward throughout summer and autumn sewage is their daily fare, poured into the pots with no sparing hand, for the drainage is carefully done, and so long as that acts well there is no risk of over-watering. The Chrysanthemum is as great a glutton as the Rose, revelling in rich food, and starving without it. Somebody wrote quite recently that the production of fine Chrysanthemum flowers was a difficult matter, understood only by a favoured few. But here is the mystery knocked on the head by the handle of our sewage pump; let it not presume to thrust itself into the way of plain people again.

Stakes are employed for the plants when required, but no pinching is practised. The plant generally breaks naturally into two or three leading shoots, which are tied loosely to the stakes, and all lateral growth is kept under. They attain a height of 7 or 8 feet, stems and foliage all being worthy of the sewage. So, too, are the huge flowers by which they are eventually crowned. Care is taken to disbud as early as possible, the central bud only being retained upon each of the shoots which spring from the end of each stem.—EDWARD LUCKHURST.

SILKWORMS AND SILKWORM-REARING.—3.

It is with some people a favourite subject, not particularly pleasant to others, though it may prove in the long run occasionally useful, how much is lost or wasted year by year that might be turned to good account. In one of the papers published by the Silk Supply Association there appears the statement that in the vicinity of London are about thirty thousand Mulberries, from which, by judicious rearing of silkworms, there might be obtained 10,000 lbs. of silk annually. Granted the Mulberry trees, I doubt much whether, under the most promising circumstances, such a quantity of silk could be thus obtained near London from silkworms if kept on a sufficiently large scale. But I am tolerably well acquainted with our London suburbs, and do not believe there is anything like that number of Mulberries now growing, old trees or young. Some have been planted in various localities, very seldom, however, in lines or groups; yet many trees have disappeared that were formerly well known owing to the growth of the metropolis. Chelsea Park retains none of its old Mulberries, I believe; nor would it be of any use to seek for remnants of the Mulberry Garden at Pimlico. We may hope that before the end of the present century many more Mulberries will be planted about London and throughout England; for though attempts have been made to rear silkworms upon other food, the Mulberry is manifestly the species in every way best adapted for feeding them upon with satisfactory results. It is in the hands of our gardeners to encourage the culture of the Mulberry, not only as a fruit-bearer, but as supplying leaves for silkworms, and I venture to think they have a degree of interest in whatever may tend to cheapen silk. Gardening pursuits are not, on the whole, unhealthy, still they expose many persons to chills from changes of temperature and contact with damp earth. Flannel as a protective against cold and rheumatism has, in some instances, been proved to be inferior to silk under garments, which do not induce perspiration, but at present they are rather expensive. Perhaps the day may arrive when to some of our nursery gardens there will be attached a silkworm house, the product being reeled on the premises, and, if not supplying an additional source of income, at least furnishing silk textures to the proprietor and his friends.

Before considering the common silkworm in its aspect as a "domesticated animal," if one may so style it, the structure and natural habits of the species call for some brief remarks. In this *Bombyx Mori* we have none of those bright colours during any of its stages which please the eye in other insects of the group. The moths are of a dull white, shading into grey, with a few faintly defined bands across the wings. These, as we know the species, are never used for the purpose of flight; the moths show also little inclination even to crawl about. No native moth of Britain is quite so sluggish as *B. Mori*, yet probably in its original haunts and in a different climate its habits may be more lively. These

moths eat nothing, for a very good reason—they have no organs to bite or suck with, and their sole duty is to continue their race; the life of the males being the shorter, their companions dying as soon as they have deposited their eggs. This is generally within a week after the moths have come forth, though the females may be kept alive longer if they are prevented from following the natural process of egg-laying, for, as entomologists know, all female insects have a strong vitality until that business has been accomplished. The number laid by each moth is variable, seldom less than three hundred, and they are neither piled up nor scattered, but placed side by side with careful regularity all by the sense of touch, for the moth never turns her head to see what progress she is making.

In our country there is only an annual brood of this silkworm, the young larvæ or caterpillars emerging from the eggs during the spring, the date depending upon the season, and they appear in rapid succession. The newly-hatched caterpillars are of a dusky brown hue and hairy, having a horn or appendage above the anus, which, like the colour of the body, undergoes changes, until after the last moult it generally resembles a ridge or hump. Between the time of hatching and the period of maturity four moults occur, which divide the life of a silkworm into five ages.

A rather perilous portion of its life is the few days before the first moult, for it is then small in size, and, eating but little, has not gained much strength. Having cast its skin the silkworm is lighter in colour, less hairy, and shows traces of the crescent-shaped marks, which are subsequently very distinct on the second and fifth segments. The next moult leaves the silkworm hairless and almost white; it has now become about an inch in length and more plump. Between the moults there is an interval of six or seven days, so that the caterpillar is a month old on the average when it reaches the fourth or last moult, which is followed by a great increase of size during the remaining nine days or so of its existence in this stage, when it eats so incessantly as to consume many times its own weight in leaves, and gradually becomes transparent. In fact, to the eaters of caterpillars (for such there are), the adult silkworm presents a tempting-looking morsel, superior, I should say, to the *coscius* upon which the Romans of old are said to have feasted.

Taking a silkworm for examination when of some size, we perceive the body is composed of thirteen segments, the head counting as the first. This head is horny, and has an upper lip curiously hollowed to receive the edge of a leaf, which is held by it while the jaws cut off slices, which are pushed towards the opening by two little appendages called the "palpi." An under lip closes the mouth, and this has in it a small orifice from which the silken thread is drawn by the caterpillar. There are six jointed legs, which are also found in the moth, and ten membranous legs or elaspers, which belong to the caterpillar only. On the sides of the body is a double row of breathing pores.

At each of the four moults every part of the exterior of a silkworm develops a new covering beneath the old one, which is then cast off by means of a liquid which oozes between the two coats. While this change is in progress the creature remains motionless, seemingly in a condition of sleep, and quits its food for a day or two. It is injurious to the silkworm to be disturbed at these periods. In order, as far as possible, to preserve itself from dislodgement and annoyance, it spins threads across

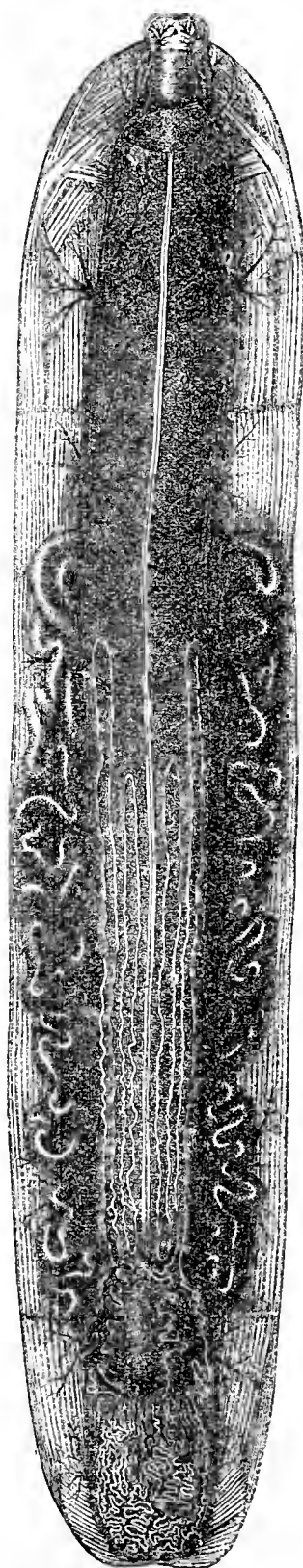


Fig. 86.—Digestive Apparatus of Silkworm.

a leaf or other object; these, moreover, give a leverage, so to speak, enabling it to pull itself out of the skin that has become too small to allow of its continued growth.

Upon laying bare the interior of the silkworm as exhibited in our illustration (fig. 86), we perceive a beautiful if not highly complicated arrangement. There is a short œsophagus or gullet by which the food is carried into the long stomach, which occupies the greater part of the centre of the body, terminating in a short intestinal canal with the usual convolutions. The nervous system—and this is possessed even by a silkworm—is noticeable as a series of nerve-centres, with radiating fibres, extending from the head to the tail. Along the sides of the stomach are the tubes in which silk is elaborated: it is secreted in the narrow hinder tubes, and becomes thicker in the large tubes nearer the head, where it is stored until required. At the head the ends of these double tubes unite, and the product issues forth as a single thread. Layers of fatty matter lie over and protect these organs more or less.—J. R. S. C.

NATIONAL ROSE SOCIETY, 1882.

ANNUAL GENERAL MEETING.

CONTRARY to some expectations the meeting of this Society at the Horticultural Club-rooms, Arundel Street, Strand, on Thursday the 8th inst., was very well attended, twenty-nine members assembling to aid in conducting the Society's affairs to a close for the year 1881, and to authorise the arrangements for the ensuing season. The following were the members present—H. Appleby, George Baker, Rev. H. A. Berners, Hon. and Rev. J. T. Boscawen, F. Burnside, B. R. Cant, R. B. Cater, Rev. A. Cheales, Capt. A. Christy, J. Cranston, Rev. T. N. Flintoff, Rev. J. M. Fuller, J. House, T. B. Haywood, W. J. Jefferies, J. Mayo, W. Mount, George Paul, G. W. Piper, G. Prince, Rev. J. H. Pemberton, Wm. Rumsey, W. G. Sharp, Arthur Turner, W. M. Westall, E. R. Whitwell, the two Hon. Secretaries—the Rev. H. H. D'Ombraïn and Mr. Edward Mawley, and the representative of the Hon. Treasurer, Mr. G. Lambert. Shortly after 3 P.M. the Hon. and Rev. J. T. Boscawen took the chair, and the business was commenced by Mr. E. Mawley reading the circular calling the meeting. The Chairman proposed that the minutes of the last general meeting be taken as read, which was formally agreed to, Messrs. B. R. Cant and W. G. Sharp being appointed scrutineers of the ballot for the election of the Committee and officers for 1882. The Rev. H. H. D'Ombraïn then read the General Report, which follows—

It is again the pleasing duty of the Committee to offer their congratulations to the members on the continued progress and success of the Society, and to be able to speak hopefully of its future prospects. Their exhibitions have been, on the whole, successful, notwithstanding the generally unfavourable character of the season. More especially was this the case at Sheffield, where their Provincial Exhibition proved to be the best they have yet held out of the London district. Some progress has been made with the Catalogue of Exhibition Roses, which they hope will, ere long, be in the hands of their members. Two handsome challenge trophies, each of the value of about sixty guineas, which had been subscribed for early in the season by amateurs and nurserymen respectively, and presented to the Society, were for the first time competed for at the last Metropolitan Exhibition. The one given by the Rose nurserymen was awarded to Mr. R. N. G. Baker of Exeter, and the other to Mr. B. R. Cant of Colchester. The contests for these two valuable gifts added greatly to the interest of this Show, and the same may be said of the various other cups and pieces of plate offered for competition at both the Metropolitan and Sheffield Exhibitions.

Financial Statement.—It will be remembered that the Society began last year with a balance in hand of £104 3s. 7d., and on the strength of this the schedules of the Metropolitan and Provincial Exhibitions were made even more liberal than before, and it was further decided to accept the invitation of the Manchester Botanical Society to hold a third exhibition in connection with their Great International Horticultural Show. These additional arrangements, of course, occasioned a fresh outlay of the Society's funds; notwithstanding which, however, the Committee have now the pleasure of stating that there still remains a balance of £97 9s. 4d. in the Treasurer's hands.

Affiliated Societies.—In order to simplify arrangements with affiliated societies, the Committee have determined for the future to charge in all cases alike an affiliation fee of half a guinea, and afterwards to supply the whole of their medals at cost price—viz., for the gold medal £2, for the silver-gilt 12s., for the silver 10s., and for the bronze medal 3s. 6d. They do not desire to place any restrictions on the manner in which the medals should be apportioned, other than that they may not be awarded for any decoration or vase of flowers. It will be necessary for every affiliated society or society desiring affiliation to name early in the year what medals they will require.

Arrangements for 1882.—It has long been felt by many of the Committee, and they believe by the members generally, that, notwithstanding the facilities which the Crystal Palace offers for the holding of their Metropolitan Exhibition, the Royal Horticultural Society's Gardens is, after all, the fittest place for the purpose, being

the recognised centre of horticulture in the south of England. They, therefore, felt justified in opening negotiations with the Council of that Society, the result of which is, that arrangements have been made for their first Exhibition being held this year at South Kensington on Tuesday the 4th of July next. The Committee have much pleasure in stating that they are once more in a position to give their members the privilege of a private view of their principal Exhibition, thus affording them an opportunity of inspecting the blooms when in their first perfection, and without the discomfort necessarily attending a crowded Rose show. The Provincial Exhibition will be held at Bath on June the 28th, and from the cordial reception recently given to one of your Secretaries who visited that city for the purpose of making arrangements, they feel assured that the Exhibition to be held there will equal in interest and importance that of last year at Sheffield. As these dates will, to a certain extent, hinder the northern and midland growers from competing at these Shows, it has been decided to attempt a third Exhibition on some day during the third week of July, at a town in the midland counties yet to be selected. At each of these Exhibitions the same right of members to a private view will be secured.

Members' Privileges.—Members subscribing £1 will be entitled to two private view tickets, and also to four transferable tickets, admitting at the same time as the general public. Those subscribing 10s. are entitled to one private view ticket, and also to two transferable tickets, admitting at the same time as the general public. All these tickets are available for each one of the Society's exhibitions. To exhibitors pass tickets will be given with their show cards, enabling them to leave and return to the place of exhibition at any time during the day.

The Committee desire, in conclusion, to tender their best thanks to those friends who have so generously and kindly helped them during the past year, to the donors of special prizes, and to the local Secretaries for their continued exertions on behalf of the Society. Their thanks are also due to the President, Curator, Secretary, and Committee of the Sheffield Botanical Gardens, and especially to Mr. Charles Fisher, for their hearty co-operation on the occasion of the Society's Provincial Show; also to our own President for the interesting and valuable address given by him on that day.

The Hon. Secretary further added that, owing to the early dates of the two shows at Kensington and Bath respectively, it was proposed to hold another about the third week in July for the benefit of the northern growers, the majority of whom would be unable to compete at the Southern Exhibitions. They had received an invitation from Darlington, and it was thought that town would be very suitable for the purpose. Some of the members asked if Newcastle-upon-Tyne would not be even better adapted for the Northern Show, but it was explained that the recent exhibitions of that Society had proved so unsuccessful that they were not in a position to give the requisite aid. The report was then formally carried and adopted. Mr. D'Ombraïn next read the Auditors' report and also the balance sheet which follows—

BALANCE SHEET FOR THE YEAR ENDING 30TH NOVEMBER, 1881.

RECEIPTS.		£	s.	d.
Balance in hand and at Bankers 30th November, 1880.....		104	3	7
Subscriptions received.....		247	5	6
Donations to Society.....		7	0	0
" Special prizes.....		7	0	0
Affiliation Fees from Local Rose Societies.....		20	15	0
Entrance Fees.....		8	15	0
From Crystal Palace Company.....		105	0	0
" Botanical Society, Sheffield.....		105	0	0
" " Manchester.....		50	0	0
		£654	19	1

EXPENDITURE.		£	s.	d.	£	s.	d.
Printing, Stationery, and Advertising.....		45	10	6			
Postage, Telegrams, Messengers, and Sundry Expenses ..		26	6	9			
Expenses—Crystal Palace Exhibition.....		6	4	0			
" Sheffield.....		11	3	6			
" Manchester.....		3	0	0			
Secretary's Travelling Expenses—London, Newcastle-on-Tyne, and Bath—to arrange for Provincial Shows....		8	3	0			
Medals, £15 10s. Dies, £4 10s.....		20	0	0			
Accountant for keeping Books, preparing Balance Sheet, and other Services rendered.....		10	10	0			
* Prizes—Crystal Palace Exhibition.....		228	15	0			
* " Sheffield.....		141	10	0			
* " Manchester.....		56	7	0			
Balance at Bankers.....		65	12	5			
Cash in hand.....		31	16	11			
		97	9	4			
		£654	19	1			

Examined and found correct.

GEORGE P. HAWTREY, } Auditors.
GEORGE PAUL, }

WILLIAM SCOTT, Hon. Treasurer.

Mr. B. R. Cant considered the sum spent in printing the schedules was unnecessarily high, and might be decreased by

Exclusive of the special prizes presented by members and others.

having all the schedules combined in one similar to that adopted by the Royal Horticultural Society, instead of issuing them separately as at present. Mr. Mawley doubted if this would effect the saving anticipated, and it was the general opinion that the advantages to be gained would be comparatively slight, if any. Mr. George Baker then moved the adoption of the report, which he thought highly satisfactory, and also proposed a vote of thanks to the Hon. Treasurer, Mr. W. Scott, and especially to his assistant, Mr. G. Lambert, upon whom much of the labour had devolved owing to Mr. Scott's illness, which they all regretted. Both these motions were carried unanimously. The Rev. J. H. Pemberton proposed a vote of thanks to the Horticultural Club for the use of their room during the year, which was duly seconded and carried, Mr. D'Ombraïn remarking that it was the last occasion of the Society meeting there, as the Club was about to be closed, and therefore the future meetings would be held in Henrietta Street, Covent Garden. A vote of thanks to the Officers and Auditors was carried unanimously, and the Chairman announced that the ballot had resulted in the election of the following as Committee and Officers for 1882. The names of additional members are preceded by asterisks.

COMMITTEE AND OFFICERS FOR THE YEAR 1882.—President: The Rev. Canon Hole. Vice-Presidents: The Hon. and Rev. J. T. Boscawen, James McIntosh, and George Baker. Committee: H. Appleby, J. H. Arkwright, R. N. G. Baker, Rev. H. B. Biron, W. Brockbank, Rev. C. H. Bulmer, T. F. Burnaby-Atkins, Rev. J. B. M. Camm, B. R. Cant, R. B. Cater, Rev. A. Cheales, Captain Christy, J. Cranston, H. Curtis, J. Cutbush, *C. E. Cuthell, C. Davies, *Rev. E. L. Fellowes, Rev. J. M. Fuller, Rev. F. H. Gall, T. Gravely, *T. B. Hall, G. P. Hawtreay, T. B. Haywood, Dr. R. Hogg, C. F. Hore, J. Laing, Dr. M. T. Masters, H. K. Mayor, J. Mitchell, W. Mount, G. Paul, W. Paul, J. D. Pawle, Rev. J. H. Pemberton, Rev. E. N. Pochin, G. Prince, T. F. Rivers, W. Robinson, *J. Sargant, W. G. Sharp, A. G. Soames, J. T. Strange, J. Tinsley, A. Turner, C. Turner, H. J. Veitch, *W. Walters, *E. R. Whitwell, F. T. Wollaston. Auditors: G. P. Hawtreay and George Paul. Hon. Secretaries: The Rev. H. Honeywood D'Ombraïn and Edward Mawley; and Hon. Treasurer: William Scott.

A discussion arose concerning the provincial show for 1883. The Rev. H. A. Berners expressed a desire that the Society would favour the eastern counties, and suggested Cambridge as a suitable locality convenient both for the northern and southern growers. It was objected to this by some members, that the period when the Exhibition would be held would be the long vacation when the town is comparatively empty. Others proposed Ipswich or Nottingham, but no definite conclusion was arrived at, and the meeting terminated with a hearty vote of thanks to the Chairman.

HARDY FLOWERS—MEANS OF INCREASING THE PLANTS.

THE propagation of hardy plants is now a matter of more importance than it used to be. We have arrived at a period when it is seen to be needful to keep the great majority of hardy plants in a young and healthy condition, and the propagation of the various species requires timely attention. Many plants propagate themselves naturally by their habit of growth; such are *Phlox stolonifera*, *Hieracium aurantiacum*, many of the *Sedums* and *Saxifrages*, *Campanulas*, of which *C. grandis* may be taken as the type, as well as others. When increasing such plants, all that is necessary is to lift tufts and plant them out, either in the places they are intended to occupy or in nursery lines until wanted. Either spring or autumn is suitable for increasing such plants. Many species are easily propagated by division of the roots. Some of the finest may be thus increased easily and successfully. *Phloxes* of the florist section, *Delphiniums*, *Pyrethrums* of the *P. roseum* type, *Campanulas* such as *Van Houttei*, *C. persicifolia*, and *C. carpatica*; *Asters*, *Hepaticas*, *Christmas Roses*, *Erigerons*, *Stenactis speciosa*, &c., may all be propagated with the best results. The way to set about this work is, in the first place, to lift the plants to be divided, shake the soil from the roots, then divide the crowns to the size wanted. I invariably find that pieces with few crowns make the best plants. Do not leave many roots, which can do no good to the young plants; a few to each piece will be sufficient until new roots are formed. Autumn is the best time for this mode of increase, though for a later bloom spring is suitable. Spring-divided *Phloxes*, for instance, were in flower in the last week of November.

Through the late autumn months many dwarf plants form roots above ground. No better way of increasing such plants can be found than that so provided. The way to manage these is to pull the top growths in pieces according to the size wanted; or, in the matter of scarce sorts, to the number of plants required.

Dwarf and close-growing *Dianthus*, *Androsace carnea*, *Myosotis dissitiflora*, *Aubrietias*, *Arabis albida*, dwarf-growing *Thymes*, such as *T. lanuginosus*, *T. montanus albus*, and *T. cæsius*; dwarf *Veronicas*, such as *V. pæctinata*, *V. saxatilis*, and *V. rupestris*, besides many other plants, are easily increased by this means.

Propagation by cuttings is a mode which can be successfully employed with many plants. *Phloxes*, for instance, may be thus increased at almost any season of the year. New *Pyrethrums* can be increased by the same mode. *Asters*, *Campanulas*, &c., are also increased rapidly from cuttings. Such plants as *Phlox frondosa* and its varieties, *Iberis corifolia* and others of that class, *Helianthemums*, and other woody subjects are most easily increased by means of cuttings. The beginning of October is a good time to insert the cuttings. I have raised large quantities of these and many others taken at the above time, merely dibbling the cuttings into the ordinary garden soil and covering them with old sashes until rooted. The plants are ready to transplant in the succeeding spring. Several plants, again, are much better raised from seeds than by any other means. *Antirrhinums* and *Sweet Williams* are cases in point which everybody may be expected to know. *Fox-gloves* and the many beautiful kinds of *Canterbury Bells* are also freely propagated from seeds. These come quite true to colours. Then no better nor quicker means can be adopted to obtain a large stock of *Aquilegias*, *Lupinus polyphyllus* and its varieties, *Delphiniums*, *Campanula pyramidalis*, some of the *Primulas*, such as *P. capitata*, *P. rosea*, *P. cortusoides*, *P. japonica*, &c. *Papavers* are also most easily increased by this means; the beautiful *P. alpinum* in many soils sheds its seeds, increasing freely. *Erinus alpinus* propagates itself by the same means, so does the pretty Alpine *Toadflax* (*Linaria alpina*). The star-flowered *Vittadenia triloba* keeps up a stock itself, and so do many others, provided the seedlings are not cut up by the hoe in a young stage. As a rule, seeds of hardy plants will not vegetate freely in heat. I have found them do very well sown in cold frames early in spring and allowed to come away in their own time. Many of them will flower late the same year, and those that do not flower will make extra strong plants for the one succeeding. Where seed is saved from home-grown plants it is a good plan to sow the seeds when ripe in the open air if before autumn, under protection if later.

It may be noted that in some families the various species of which they are made up must be treated according to their individual necessities. The *Campanulas*, for instance, are a large family, in which are kinds which are most successfully increased by division, others by cuttings, and others by seeds. The interested cultivator is not long ascertaining the best means of increasing the numerous plants in his mixed borders.—R. P. BROTHERSTON.

PORTRAITS OF NEW AND NOTABLE PLANTS.

SYNECHANTHUS FIBROSUS. (*Nat. ord.*, *Palmeæ*).—"A graceful tropical Palm, one of a genus of three known species, two of them natives of that part of the American continent which, extending from Mexico to Panama, is commonly known as Central America, and which includes Yucatan, Guatemala, Belise, Honduras, Nicaragua, and Costa Rica; the third Colombian. These countries are all rich in Palms, for a knowledge of which we are mainly indebted to Herman Wendland and Oersted, the enterprising botanical explorers of those unhealthy regions. *Synechanthus fibrosus* is an exceedingly graceful Palm, with a trunk in the Kew specimen about 4 feet high, and a crown of leaves as long, from amongst the bases of which the graceful spadices spring, laden with almost microscopic flowers. These are succeeded by the bright orange-red fruits, which weigh down the spadix, and are copiously produced."—(*Bot. Mag.*, t. 6572.)

BERBERIS SINENSIS. (*Nat. ord.*, *Berberideæ*).—"This is the most graceful of all the numerous species of *Barberry* cultivated at Kew, the branchlets from the base to the crown of the plants weeping and being loaded with blossoms in the spring. The flowers are, however, the smallest of the genus known, and the berries are smaller than those of *B. vulgaris*. *Berberis sinensis* has been long cultivated in the arboretum of Kew, but was not so at the period of the publication of the second edition of the 'Hortus Kewensis' (1811), where only four species are enumerated as existing in the Royal Gardens. Loudon, however, states that it was found during Lord Macartney's embassy to China, and introduced into England in 1800."—(*Ibid.*, t. 6573.)

CLEMATIS RETICULATA. (*Nat. ord.*, *Ranunculaceæ*).—"Clematis reticulata ranges in the Southern United States east of the Mississippi, from South Carolina to Florida. A plant has been grown at Kew in the open border, received from Messrs. Rodger McLelland & Co., under the name of *C. Fremonti*, a very different

species, with very large leaves and no tails to the achenes. The flowers, which appear in September, are much paler than as described in native specimens. The plant was nearly killed by last winter's cold, and is only now beginning to grow again."—(*Ibid.*, t. 6574.)

OSBECKIA ROSTRATA. (*Nat. ord.*, Melastomaceæ).—"A handsome plant, and common over a large tract in India. It is a native of swampy districts along the foot of the Himalaya and in Northern Bengal, from Nipal eastward to Assam, Rangoon, and Burma. These were supposed to be the limits of its range up to the period of the publication of the order Melastomaceæ in the Flora of British India in 1879, since which time, however, a perfectly glabrous form of it has been found by Col. Beddome in the Sirumallay hills of the Deccan at an elevation of 3500 feet. As a rule it affects very wet places, and especially Rice swamps, &c., but it sometimes may be found in moist places in the hills. It was introduced into Kew about twenty-five years ago, and flowered first in 1857. It requires stove treatment."—(*Ibid.*, t. 6575.)

SCHISMATOGLOTTIS CRISPATA. (*Nat. ord.*, Aroidæ).—"Schismatoglottis crispata is one of the many interesting plants introduced from Borneo by Mr. Burbidge when collecting for Messrs. Veitch, and amongst which the Aroidæ, which have been studied by Mr. N. E. Brown of the Kew Herbarium, are conspicuous for their number and novelty."—(*Ibid.*, t. 6576.)

ENGELMANNIA PINNATIFIDA. (*Nat. ord.*, Compositæ).—"A herb belonging to the same great American tribe of Compositæ as the Sunflower, named in honour of the veteran United States botanist, Dr. Engelmann, of St. Louis in Missouri. It is a native of the prairie region of the central United States east of the Rocky Mountains, where it extends from the latitude of Canada to that of Texas. Seeds were received at Kew, collected in New Mexico by Dr. Parry, the plants from which flowered in the second year, and have proved perfectly hardy, having been unprotected in the herbaceous grounds during the last severe winter. It flowers in the month of July."—(*Ibid.*, t. 6577.)

EUADENIA EMINENS. (*Nat. ord.*, Capparidæ).—"The genus Euadenia was established by Professor Oliver upon two tropical African plants, of which one, *E. trifoliolata*, *Oliv.* (*Stroemia trifoliolata*, *Schum. and Thönn.*), from Old Calabar and Abbeokuta, is an undoubted congener of this plant, though differing in its racemose flowers; the other, *E. Kirkii*, *Oliv.*, from the Mozambique district, is probably a different genus, which is very imperfectly known. *E. eminens* differs from all the other species in the singularly handsome inflorescence, which resembles a candelabrum in its ramification, the yellow petals looking like pairs of gas jets on each branch. It was introduced from West Africa by Mr. Bull."—(*Ibid.*, t. 6578.)

IRIS MISSOURIENSIS. (*Nat. ord.*, Iridacæ).—"This appears to be the commonest Iris of the Rocky Mountains, long known in England as *Tolmieana*. Whether it be more than a montane variety of the Californian *Iris longipetala* of Herbert, which is a very much finer plant from a cultural point of view, is doubtful."—(*Ibid.*, t. 6579.)



HARDY FRUIT GARDEN.

FAVOURABLE weather should be taken advantage of to forward pruning, nailing, and tying trees against walls. In pruning old trees—especially of the Apricot and Plum, also Pear—overgrown, old, and barren spurs should be gradually cut back alternately, so as to keep the fruitful buds as close to the wall as possible in order to derive the greatest benefit from its shelter and warmth. The spurs so cut back will generally start at the base if the trees are healthy, and furnish buds for future bearing in due time. By timely pruning the unsightly projections will not be reproduced, a little attention being given to this each season at the summer as well as winter pruning. Pruning Peaches and Nectarines is generally deferred until spring, but the wood being ripe there is nothing gained thereby, and from the press of other matters the work is frequently done hastily and imperfectly. The trees should be loosened from the wall, leaving the main branches secured to maintain the trees in position. The shoots that have borne fruit this year, if they were not cut out after the

fruit was gathered, should be removed, also any old weakly growths that can be replaced with younger wood. The shoots that were reserved at the base of the current year's fruiting shoots for next season's bearing, should be neatly nailed or tied in, and if they be short-jointed and well ripened they will need very little, if any, shortening; otherwise cut them back to firm well-ripened wood, being careful to do so to a wood bud or triple bud, which will generally have two fruit buds with a wood bud in the centre. Avoid training in too many shoots, the bearing wood being 12 to 15 inches apart, and the branches they proceed from a similar distance asunder. Extensions should not be shortened more than to have the unripened points removed or to originate growths for furnishing the trees. Young trees of Peaches, Nectarines, Apricots, and Plums in course of formation should have the central shoots shortened as necessary to originate growth at the required distance apart for forming the principal branches. In securing them to the wall leave sufficient space in the ligatures for the swelling of the shoots, as any undue pressure or contact with nails or wires may induce canker and the loss of the branch.

FRUIT HOUSES.

Vines.—Forcing must now be commenced in earnest if ripe fruit is to be had before the end of May. A night temperature of 50° to 55° will not be too much during mild weather, and 60° to 65° in the daytime from sun heat. Syringe occasionally when the weather is bright; but if fermenting materials have been placed on the floor of the house as advised in a former calendar, and a portion stirred daily, syringing, except in the most severe weather, will not be much required. Continue the treatment advised under this head on December 1st for Vines in pots, and as the flowers open increase the night temperature 5°, keeping the atmosphere rather dry. The moisture arising from the fermenting bed will be sufficient to secure a genial condition of the atmosphere. Remove old foliage from midseason and late houses as soon as possible, and prune directly the Grapes are cut. One of the most important operations in Grape culture is early pruning. Heavily taxed Vines cannot have too long a season of rest. Even with late Vines it is advisable to cut the wood away quite to the Grapes, and not retain them on the Vines longer than the early part of the year, which will allow the Vines to be pruned and have some weeks' rest. Outside borders to which the annual top-dressing of fresh loam and bone meal has not been applied may be examined and covered. Generally a layer of hard inert soil forms on the surface and deprives the roots of air and moisture. In such cases the surface soil must be carefully removed down to the roots, supplying the usual compost and covering.

Figs.—To have ripe trees early in May the trees must be started at once, and for this purpose cultivation in pots is preferable, as at this season a slight degree of warmth at the roots is highly beneficial, provided it be regular and does not during the early part of the process exceed 70°. The pots should be raised in the bed on pedestals of open brickwork. Three parts Oak or Beech leaves with a fourth of stable litter form a material affording a mild and lasting heat. More than 70° at the roots is not needed, indeed is injurious from inducing growth too rapidly. Commence forcing with a night temperature of 50°, and 55° from fire heat in the day, allowing an advance to 60° or 65° by sun heat. See that the soil is thoroughly moist before the trees are plunged, and if very dry immerse the pots in water until the soil is saturated. Considerable moisture will be given out by the fermenting materials, but when the weather is bright the trees will need syringing twice every day. It is important that the trees have a position where they will be fully exposed to light. Ventilate a little on all favourable occasions, maintaining a free circulation of air after growth takes place, so as to insure well-solidified growth and thick-textured leathery foliage. Ventilate early Fig houses as before advised, and those which are to be started early in January must at once have what attention is yet needed to prepare them. Complete cleaning and tying trees in later houses as opportunity offers, keeping them as cool as possible, frost, however, being excluded.

Cherry House.—To have Cherries ripe from the middle of April onwards the house should now be closed. Use no fire heat at the commencement unless absolutely necessary to secure a night temperature of 40°, and 50° by day. Ventilate a little at 50°, and freely

at 55°. A confined atmosphere above the latter degree of heat should not be allowed, and is at all times highly injurious. Syringe the trees early on fine afternoons and at other times when the atmosphere becomes dry, but with the borders kept moist syringing will not be necessary in dull weather.

Cucumbers.—The plants showing fruit plentifully must not be allowed to carry too many; if the plants are weakly fully two-thirds of the fruit should be removed, removing likewise the tendrils and staminate blossoms. The roots will need a moderate earthing occasionally of previously warmed soil, pressing it down rather firmly. Be careful in the application of water; a fair soaking once or twice a week according to the weather and condition of the plants will be all that is necessary. Plants growing in pots will require it more frequently, and should have a little extra feeding. The temperature should be 65° to 70° on mild nights, 5° less in severe weather, 70° to 75° by day, and 80° to 85° with sun heat. Ventilate carefully whenever a favourable opportunity offers. If wireworms be troublesome insert baits of Carrot beneath the surface of the bed and examine daily. Woodlice may be caught by baits of boiled potato wrapped in a little hay and placed in flower pots laid on their sides. Toads in the house are useful. Worms must be expelled with lime water, but many may be taken by looking for them at night with a lantern, when they will be found travelling over the surface of the bed. Watch for canker in the old growths and at the collar, applying fresh-slaked lime on its first appearance. Where means do not exist for raising plants for planting in pits or frames, Oak or Beech leaves should now be thrown into a heap with a third of stable litter, turning them over, watering if necessary, so as to have them in proper condition for making a bed for raising plants of these; also Melons for planting in pits or frames heated by fermenting materials. Where, however, there are houses with a suitable temperature for raising the plants a bed can be dispensed with.

PLANT HOUSES.

Forcing House.—Introduce plants to this structure, or a house with an intermediate temperature. Indian Azaleas, especially of the early-flowering kinds, readily come into bloom in a rather moist atmosphere and temperature of 55° to 65°, and so do most other plants for forcing. Amongst the most valuable may be mentioned Azalea mollis in several shades of colour, and the Ghent varieties, with the deliciously fragrant A. pontica. Staphylea colchica, with its beautiful terminal panicles of white flowers, is highly decorative. Lilac, the common white, Charles X., and Persian are always esteemed. Rhododendrons are indispensable from their great decorative value, some of the finest for this purpose being ciliatum, Early Gem, and odoratum or fragrans of the dwarf forms; limbatum, Purity, Mrs. John Clutton, Lady Armstrong, Marian, coriaceum, cardinale, Brilliant, Michael Waterer, Everestianum, Mrs. Fitzgerald, Scipio, Cynthia, and Anguste Van Geert, with Nobleanum vars., will come into flower with very little forcing, and all are fine for conservatory decoration. Prunus sinensis alba flore-pleno is very pretty, Deutzia gracilis being indispensable. Viburnum Opulus can be also forced freely, and double Thorns, which are very pretty for wreaths and esteemed for their scent. Spiræa Thunbergi is very graceful, and few in beauty rival Kalmia latifolia. Hoteia japonica is indispensable for decoration, and Dielytra spectabilis one of the finest and most graceful.

Roses always take precedence, and are readily forced, especially the Tea-scented varieties, if not brought on too quickly. Clematises have great decorative value, and should never be omitted, some of the best being Vesta, Lady Londesborough, Albert Victor, Fair Rosamond, Lord Londesborough, Mrs. S. Baker, Stella, and The Queen. Pinks should be placed near the glass and not brought on too quickly, or they will become blind. Lily of the Valley must still have bottom heat, especially single crowns and imported clumps; the temperature about 90° at the roots, and covered until the stalks are drawn to a sufficient length, then admitting light gradually.

Introduce plants of Richardia æthiopica to gentle heat, too much heat drawing them up weakly and spoiling the plants, and the spathes are poor as compared with those grown in a temperate heat, 55° to 65° being ample. Keep the plants well supplied with liquid manure.

THE BEE-KEEPER.

SOME FACTS ABOUT QUEENS.

I NOTICE in a late issue some suggestive remarks by "COMBER" in reference to his experiences in ligurianising, which induce me to snatch a few moments from some work in connection with our subject which has been very closely occupying me recently. Our correspondent is querying the practicability of inducing Ligurian queens to breed drones early by supplying her stock with abundant brood, in order that queens may be purely fertilised after hatching in the small boxes in which Italian mothers are usually imported.

Experience during several years with work of this kind has led me to discard the use of very small lots of bees as nurses to queen cells for four main reasons. First, weak or imperfect queens are often produced; second, the bees frequently swarm out at the time the queen flies for impregnation, and disappointment follows; third, without great watchfulness starvation is likely to occur; and fourth, feeding is almost certain to lead to robbing. Each of these heads demands a word of explanation. First, very weak lots often produce imperfect queens and drones, and for that matter workers also; and I have little doubt but that the lady hatched minus a wing in the little box of our esteemed correspondent would have been perfect had the cell been allowed to remain with the parent colony. All lovers of Lepidoptera know how likely are chrysalids, cherished with much care in the earth of a flower pot, to produce imagoes of faulty development, and excess of dryness almost constantly results in ill-shapen or only half-formed wings. Some experiments I have carried out carefully during two seasons have shown demonstrably that an excess of dryness in the air surrounding a developing larva bee is as likely to injure it as it would a moth. The lamp nurseries of America showed long ago that queens could be raised in cells after sealing apart from bees altogether if the correct temperature be kept up. My experiments have shown, in addition, that a queen may be raised during all the chrysalis state, not only in the absence of the bees, but without a cell at all, if only correct thermic and hygrometric conditions are maintained. This fact is very interesting to the physiologist, as affording an opportunity of watching the progress of very remarkable and instructive changes. The nucleus "of over one hundred bees" would be unable in a "warm glass house" to maintain that moist heat which is required, and so possibly the mischance. That air is also required is manifest from the fact that the sealing of the cell is full of perforations, as the microscope at once reveals. During chrysalis changes breathing in very moderate amount is uninterruptedly continued, and fresh air is slowly supplied by the before-mentioned apertures. The germ developing within the egg of the hen is equally dependant upon a supply of oxygen, and this, no doubt, explains the discomfiture of those early experimenters in artificial incubation when it was the fashion to maintain the temperature at one dead level. The periodical absence of the hen at feeding time permitted the egg to cool, and contracted, as a consequence, the air contained in the ever-growing air vessel, and as a result a new supply was taken in through the porous shell, and so the oxygen, by what seemed an accident (but which is surely more) was constantly given to the little breathing thing within.

Secondly, the liability to swarm at the least excitement is always a great objection to small lots of bees. In more cases than one I have had three or four nuclei simultaneously desert their hives. Perhaps one or two may be subsequently found in ridiculous clusters the size of an egg, waiting the coming of the bee-master with his 20-inch skep, in order that he may suitably hive them. Those who use these small boxes for queen-raising must expect these difficulties, which, perhaps, with ample space and constant attendance, may be bearable through troublesome. When a natural swarm arises, however, the chances of getting an encasement of a valuable queen from the union of a nucleus with it is great enough to make the advantage of small boxes extremely problematical.

The third and fourth objections are simply complements of one another. The less the cluster the greater is the waste of heat, and consequently the larger the relative demand for food. Nuclei cannot consequently maintain themselves, and every attempt at feeding them is (in early spring at least) but a provocative of robbing. I now use one sized frame only, and although the control of impregnation is reduced, advantages accrue which are more than an equivalent. That queen and bees (for the consent of both seems necessary) may be induced to breed drones early by

filling the hive with brood, cannot be doubted, but this involves loss to the stocks supplying the sealed larvæ, and this loss in early spring is often sufficiently serious to tell decisively upon the profits. These early drones may be secured by placing a comb in the very centre of the hive before wintering up, or at any subsequent time that the weather makes interference safe. The free supply of food and the limitation of the hive seem the other two most important conditions. All know that small hives, *cæteris paribus*, swarm before large ones, and so by contraction crowding may be induced, and so lead the bees to contemplate colonisation. The wishes of the colony (if this expression be allowed) will often lead to the selection of cells for ovipositing. I have a frame of comb in my possession which is drone in the centre, but in the centre only. Here the primitive whiteness of the wax is apparent; no larva have been raised in it, while all around is darkened by pupæ cases. It will not be enough, therefore, to give, in the hive-middle, the larger cells; right conditions must by other means be established. This fact brings to mind the caution that if drone comb be excluded for economic purposes, the giving of supers of drone comb is almost certain to attract the queen, and so lead to some detriment by the producing of brood where its absence was desirable.

At some future time I must explain my plan of forming nuclei, so that they can be at once remitted to the parent stock when their work of queen-raising is complete.—FRANK R. CHESHIRE, *Avenue House, Acton, W.*

WAX-BOILING.

BOILING wax and preparing it for the market is very disagreeable work. All bee-keepers with their wives and servants dislike this work exceedingly, and none dislike it more than we do. Melted wax is easily cooled, and in cooling cleaves to everything it touches, and it is difficult to remove. Combs before being melted are bulky, and therefore have to be compressed before they are placed into a copper to be boiled. When the wax begins melting the pollen of the combs is liberated and mixes with the water in the copper or boiler. There is great difficulty in separating the melted wax from the pollen. Our plan has been to place the compressed combs in a bag of cheese-cloth and boil them, then skim off the melted wax and run it through a strainer or a piece of muslin. But we have never been satisfied with this mode of melting wax. It is troublesome work. After the cakes of wax have cooled some pollen slightly mixed with wax adheres to their under sides, which is scraped off, the cakes being again boiled in clean water and run through a cloth into dishes half filled with clean cold water. We obtain thus wax as pure as it is possible to take it. By running the wax into cold water at the last time of boiling the bottom of the cakes appear to advantage, and look as if they had been moulded. The bottom of our cakes of wax look better than the upper surface, owing to the cold water freezing the wax into various forms as soon as they meet.

Some years ago a bee-keeper at Wigan told the readers of this Journal that this plan of taking wax is too slow and troublesome, and that he had invented another which is easier and better. His plan or mode commended itself to me at the time, but owing to the smallness of our kitchen oven I have never put it to the test of experiment. His plan, if I remember rightly, is to melt the combs in a dry heat by putting them into a wire sieve or strainer or colander, and placing this in an oven sufficiently warm to melt the wax, and over a dish to receive the melted wax as it escapes from the pollen. This appears to me to be a very feasible mode of melting wax, and much easier than the one we have followed for so many years.

Another mode of taking wax—probably the best yet invented—was carried into execution in Bowdon a short time ago. A lady obtained a great boxful of honeycombs; she first took the honey cleanly from the combs, then commenced in a novel manner to manufacture the wax. Instead of taking the wax from the pollen and rubbish, she took the pollen from the wax by washing it in clean water. Then she boiled the wax and poured it into a dish without using a filter. She brought the wax to me to sell for her, which I did at 2s. per lb., and I have never seen better or cleaner wax. This plan makes wax-taking comparatively easy and pleasant.—A. PETTIGREW, *Bowdon.*

BEES IN DECEMBER.—I notice as what is to me a very unusual occurrence, bees busy on flowers in the open air during the last month of the year, especially on some lingering sprays of Mignonette and Wallflowers that have mistaken their season. Violets and Primroses are also affording them exercise, but the beautiful yellow flowers of the winter Jasmine appear to be more attractive to me than they are to them. Will this late feeding benefit the bees?—DOUBTFUL.



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Exhibiting Chrysanthemums (*J. H.*).—1, Japanese varieties ought not to be included in a class for "incurved blooms." 2, Japanese varieties are a distinct class, and ought only to be exhibited in their own section, unless special provision is made to the contrary.

Second Early Potato (*E. H.*).—Soils exert a great influence on the Potato, and in the soil in which we planted the tubers you sent the crop was not good, being light in weight, and the tubers small. We will try the variety again on different ground; at present we cannot determine its name even approximately, the true character of the tubers evidently not being developed.

Sawdust as Manure (*A Seventeen-years Subscriber*).—In the way in which the sawdust is prepared—that is, spread in pigstyes and saturated with urine and mixed with manure, it will certainly be valuable for your grass land, and also for your garden, especially if the soil is of a rather strong nature, as it will then have a good mechanical as well as manurial effect. By all means try it, and the probability is that it will do much good and not harm.

Fancy Primula (*Vinder*).—We have seen many varieties of the same nature, some being better and others worse than yours, but as a rule these novel forms possess little decorative value, as, although the plants grow freely, the general effect they produce is seldom satisfactory. You may well preserve your plant and raise seedlings from it and try them, as there is always a possibility of distinct and attractive forms being produced; but the present variety will not, we think, become popular nor prove of commercial value.

Peach Buds Falling (*Inquirer*).—The most fertile cause is a deficiency of water at the roots, and the evil is aggravated by overcrowding the growths in summer and permitting the foliage to be infested with red spider. As you send no particulars relative to the condition of the trees nor the treatment to which they have been subjected, you must decide for yourself which has been the most active cause of the evil in your case, and act accordingly to prevent a recurrence of it another year.

Celosia pyramidalis (*S. H.*).—This is, we think, the name of the plant of which the withered spray was sent to you that you have forwarded to us. It is commonly called the Feathered or Plumed Cockscorn. There are several varieties having crimson scarlet, magenta, orange, and scarlet flowers, and good plants are very beautiful for autumn and early winter decorative purposes. They are raised from seed sown in heat, the plants being grown in rich soil in a temperature not lower than 60°. About May or June is a good time for sowing, as if raised earlier much care is needed to prevent the plants being drawn, in which case they produce small plumes. Strong plants last a long time in beauty in a warm conservatory.

Jasmine on Wall—Vine Border (*E. C.*).—You may carry out the plan you propose, taking care, however, to make a judicious selection of growths for covering the wall. A great number are sure to be naked towards the base, and these would not prove satisfactory. You will no doubt find some having side growths or buds down to the ground, the wood also being firm, and these are what you must retain for covering the wall. Assuming the turfy loam and garden soil of which you speak is good, we should not mix the manure with it, but save it for surfacing the border; if, however, the soil is poor, you might mix half the quantity of manure with it, using the other portion as top-dressing. Good Grapes are grown without bones. If you could substitute wood ashes or burnt soil for the tan you would greatly improve the border. We should not use the latter. The lime rubbish will render the border sufficiently porous.

Potash for Plants (*S. S.*).—Our correspondent "SINGLE-HANDED," to whom your letter was submitted, says:—"Potash salts may be had under the name of sulphate of potash, muriate of potash, 'kainit,' and nitrate of potash from most seedsmen and all dealers in artificial manures. Kainit, or crude potash salts, is cheapest, but it only contains about 25 per cent. of sulphate of potash (equal to 13 of pure potash); but it also contains large quantities of other salts which have been found hurtful to vegetation when more than 5 or 6 cwt. is applied per acre, and sometimes even that quantity has done mischief. Sulphate of potash contains about 60 per cent. (equal to 34 of potash), and is, though in proportion dearer, altogether preferable. Muriate of potash contains 81 per cent. of chloride of potash (equal to 50 of pure potash), and is so much more valuable. Sulphate of potash is most commonly used. The nitrate (salt-petre) we have found useful on a small scale—i.e., for pot plants when evil smells would not be tolerated. Our source of potash is the cowhouse. Cow urine contains about 40 lbs. per ton, and much other valuable matter; that of the horse contains about 54. Like you, we are inclined to think that the proper use of potash has not yet been fully ascertained; with nitrogen it is wonderful how long a vigorous growth may be sustained with it."

Heating Unsatisfactory (*B. E. W.*).—Are you sure the pipes are properly arranged? On this point you say nothing, and the evil of which you complain often follows as the result of some mistake that has been made of the nature indicated. If you send us a correct sketch of the boiler, pipes, connections, and eistern, the case shall have our attention. We are unable to answer your letter usefully from the want of sufficient data to enable us to fully understand the matter. Under the circumstances there is nothing unusual in your Thorn tree flowering now. If severe weather follows it will probably be injured,

and rather severe pruning may be needful in the spring to induce early and good growth that will ripen in the summer.

Sea Sand for Plants (Preston).—The advantages and disadvantages of sea sand for plants have often been incidentally pointed out by correspondents in the Journal. It no doubt varies in quality, and possibly is not suited alike for all kinds of plants, and, especially if used in a fresh state, it may prove injurious to some. Mr. Brotherston has described on page 350, vol. ii., new series, that his "Alternantheras did not pass the winter well, and in order to raise a stock of healthy plants for propagating later on all the cuttings which could be had were taken and inserted. They died in scores, and it was not until others were inserted, and which dampened off at the soil level in the same manner, that the cause was discovered. The sand used, instead of having been laid up for two or three years, was fresh from the seashore, and directly the plants and cuttings were transferred into other sand the losses were stopped." We may also cite what Mr. Cannell publishes in his "Floral Guide"—"Having been called to do duty as judge at the Margate and Ramsgate Flower Show, I was so surprised to see the good result of sea sand compared with the ordinary pit stuff generally used, that I was induced to procure a supply at once, and to my surprise the small portion of salt it contains certainly adds vigour to the whole soil; at all events cuttings strike in it most freely, and it is my opinion that it is far the best sand for floricultural purposes I have ever used, and is in every way superior to the Leighton Buzzard sand." This is the experience of an observant man and excellent cultivator, and it is certain he would not use this sand if he did not find the advantage of doing so. The sand Mr. Cannell uses is without doubt safe, and his store is not freshly gathered. Whether all other sea sand, and especially that recently collected, is equally safe appears to be doubtful, as is evident from Mr. Brotherston's experience above quoted.

Lapageria not Flowering (K. D.).—Your plant is still young, and in all probability will flower next year if it has been raised from a layer and not from seed, seedling plants being often shy in flowering. Still, you must prevent the slugs eating the young growths, or those made afterwards will not have time to ripen, and hence will not produce flowers. After the plant has made good growth place it in a moderately sunny position and where it can have plenty of air, as, if the shoots are healthy and solidified, flowers may be expected to follow. We doubt if you would improve it by placing the pot in a saucer of water, as there would be a danger of rendering the soil sour, and the plant would in that case inevitably lose its health and vigour. The white worms in flower pots have been introduced with the soil or manure. Apply clear lime water, which will probably either kill the worms or cause them to come to the surface. The lime water may be made as advised in answer to a correspondent on page 485.

Chrysanthemum Cuttings (An Amateur).—It is the custom of some florists not to acknowledge the receipt of orders unless they exceed a given amount as stated in their catalogues. The delay of a week in the execution of an order is not unusual, as cuttings of certain varieties are not always ready on a given day. In sending cuttings they are often accompanied by numbers only, the names corresponding to which and the descriptions of the varieties being given in the catalogue of the vendor. One of the names you have sent is incorrectly spelled, and to an amateur is no doubt illegible, but we have no difficulty in reading it—*Maréchal Duroc*, a rosy lilac variety. *Progne* is a reflexed variety, rich amaranth in colour, and fragrant. Mrs. Dixon is one of the most useful incurved yellow varieties in cultivation. We presume this is the information you require, and you could scarcely expect to have such written on the labels attached to the cuttings.

Conservatory Unsatisfactory (G. P. N., Devon).—We wish all who seek information on garden structures would send such clearly drawn plans as you have sent, and the replies would be more easy to us and satisfactory to those desiring instruction. Your letter, too, is very clear as far as it goes, but you have omitted to say one word as to the way in which the house is heated. For anything we know to the contrary, the system of heating may be defective, and contribute to the evil of which you complain; further, in houses so situated gas is often burned, and this is prejudicial. But assuming the conservatory is properly heated, there is certainly not sufficient provision made for ventilation, and the ill results arising from this defect are aggravated by the smooth surfaces. The back wall being of glazed bricks, and the floor paved with encaustic tiles, no moisture can be absorbed and given off again as is the case with surfaces of plain bricks and the soil of beds, which vapour is of the greatest benefit to plants. You can only render such a house even fairly suitable for plants by greatly increasing the roof-ventilation at the top of the house. A continuous ventilator to open at the least a foot wide—18 inches would be better—would not be too much there at certain seasons; if you cannot adopt this mode, provide as many separate openings as you can. Then, according to the weather, you must use much moisture. If this cannot be sprinkled on the floor many plants might be stood in saucers of water, and others on pots inverted in saucers, where water in immediate contact with the roots is undesirable. Until you have more moisture in the atmosphere your plants cannot thrive. The ventilators at the top of the house should be first opened, and if sufficient air can be admitted by these without opening the front ventilators all the better, but at any rate do not open these more than is necessary. By acting judiciously on the lines indicated the plants will be maintained in health much better than under present circumstances. No doubt a well-constructed and properly managed house in the position you name would answer either for Vines or plants or both. The plant of which you have sent a leaf is not *Hoya bella*, but *H. carnosa*.

Trellis for Vinery (F. J.).—The screws or nuts for tightening the wires are of brass, and are somewhat difficult to describe, but we can perhaps send you one if you will forward to our office your address and stamps to prepay postage. "Eyed straining screw with nut" will also answer for tightening the wires, and may be had of Messrs. Brown & Co., 90, Cannon Street, London. The copper tacks for securing the squares should be three-quarters of an inch long. For each square you will require four tacks—two at the bottom to prevent the square slipping down, and two near the bottom above the glass to prevent its being blown out. When glazed coat well with paint, coming over a little on the glass, but not quite so much as the width of the rebate or bed of the putty beneath the glass. Half-an-inch lap is too much, a quarter of an inch being ample, as the more lap the more water gets in, and the more danger there is of breakage in frosty weather.

Cesspool (Idem).—The contents of the cesspool from the dwelling-house may be applied in moderate quantity to fruit trees during the winter, and between the rows of Strawberries, but if strong would be best mixed with soil and applied as a top-dressing. If applied too freely or too strong it will injure if not kill the fruit trees.

Asters for Cutting (J. A.).—The same varieties that are grown and flowered out of doors may be flowered also in pots, but they must be grown to a flowering stage under full exposure to the air—that is, either outdoors or in

cold frames with the lights removed except during drenching rains late in the season. The simplest mode is to grow the plants in rich soil and pot them when the colours of the flowers are visible; indeed, thousands of plants are potted when in full flower and sold in the streets of London every autumn. Some of the best kinds for pots and for affording flowers for cutting are Boltze's Dwarf Bouquet, Pompon Umbriated, Dwarf German (early), and Dwarf Chrysanthemum-flowered (late). The best larger kind for your purpose is the Victoria. Seed of the kinds named can be had in mixture or in separate colours, white flowers being generally acceptable. For ensuring late Asters you must sow the seed late. We obtain our latest flowers by sowing seed of the Dwarf Chrysanthemum-flowered kind about the second week in June, and growing the plants in a cool moist position, and before the Aster flowers have faded Chrysanthemums are plentiful.

Names of Fruits.—We have many times notified that only six varieties of fruits can be named at once; still large packages reach us, the contents of which cannot be examined. Some fruits are not named because the sender's name does not accompany them, and we cannot always determine to whom the respective parcels belong, even by the aid of letters received by post. Pears, we have previously intimated, ought to be ripe or approaching ripeness when sent, or a number of them cannot be identified. All packages must be carriage paid; unpaid parcels are sent every week that are not taken in. The fee for naming fruit to non-subscribers is 5s. It is important that these conditions be attended to for preventing disappointment. (A. Y., No. 1).—The Pear you have sent is *Fondante de Malines*. (James Saurle).—Apple—12, Emperor Alexander; Pear—6, Colmar d'Arenberg. We do not know the names of any of the others. (H. C. Prinsep).—28, Joséphine de Malines; 32, Flemish Bonchrétien. (S. S.).—1, Tower of Glamis; 2, Dutch Mignonne. (Pyrus).—1, Rymer; 2, Wyken Pippin. (T. H.).—8, Hoary Morning; 2, one of the Costards; 3, Striped Beefin; 4, Blenheim Pippin; 5, Devonshire Queen; 6, not known. (G. B. C.).—The Pear is Colmar d'Arenberg, the Apple Norfolk Beefin.

Names of Plants (F. R.).—The specimen you have sent is a well-grown form of *Lygodium scandens*, a species that was introduced from the E. Indies towards the close of the last century. Your plant is unquestionably worth preserving, but we doubt if it is distinct enough to merit the award you desire; still, you might submit it to the consideration of the Committee. (C. E. P.).—The large brownish flower is *Cypripedium insigne*, and the small flower is, we think, *Cymbidium Mastersii*, but it could not be satisfactorily determined. (E. W. B.).—Owing to the spray having been wrapped in dry cotton wool and enclosed in a letter, it arrived as much withered as if it had been exposed to the sun throughout a hot summer's day, and was quite unrecognisable. As we have said on many occasions, this material extracts all the moisture from leaves and flowers. Sprays should be packed in something damp and sent in small boxes. If we receive a specimen even in a fairly fresh state we will name it for you. (F. S.).—1, *Cotyledon fascicularis*; 2, *Sempervivum tortuosum*; 3, *Gasteria verrucosa*; 6, *Euonymus radicans variegata*. The others were too withered to be recognised.

COVENT GARDEN MARKET.—DECEMBER 14.

WE have no alteration to quote this week, trade being very quiet and prices the same.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	1 0 to 3 6	Lemons.....	per case	12 6 to 16 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	0 0 0 0
Cherries.....	per lb.	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Chestnuts.....	bushel	16 0 0 0	Oranges.....	per 100	4 0 6 0
Currants, Black ..	½ sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
" Red.....	½ sieve	0 0 0 0	Pears, kitchen ..	dozen	1 0 1 6
Figs.....	dozen	0 0 0 0	dessert.....	dozen	1 0 3 0
Filberts.....	per lb.	0 0 0 0	Pine Apples ..	per lb.	1 6 2 0
Cobs.....	per 100 lb.	7 5 0 0	Strawberries ..	per lb.	0 0 0 0
Gooseberries ..	½ sieve	0 0 0 0	Walnuts.....	bushel	7 0 8 0
Grapes.....	per lb.	0 6 4 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney....	per 100	1 0 0 0	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	pickling.....	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	2 0 2 6	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushel	2 6 3 0
Carrots.....	bunch	0 4 0 6	Kidney.....	bushel	3 0 3 6
Capsicums.....	per 100	1 6 2 0	Radishes....	doz. bunches	1 0 0 0
Cauliflowers.....	dozen	1 0 3 6	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsify.....	bundle	1 0 0 0
Coleworts.....	doz. bunches	2 0 4 0	Scorzonera ..	bundle	1 6 0 0
Cucumbers.....	each	0 6 0 8	Seakale.....	basket	2 0 2 3
Endive.....	dozen	1 0 2 0	Shallots.....	per lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 0
Garlic.....	per lb.	0 6 0 0	Tomatoes.....	per lb.	0 8 1 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	3 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



POULTRY AND PIGEON CHRONICLE.

AGRICULTURAL IMPLEMENTS AND MACHINERY.

WE have from time to time called the attention of the home farmer to this subject, as it is not only a very wide and important one but also continually subject to changes in consequence of the introduction of improvements, or attempted reforms, which may be suitable only under the varying circumstances of farm manage-

ment. One of the chief reasons for our taking up the subject is, if possible, to show the home farmer the benefit of such inventions as may be occasionally offered to his notice. Having not previously given our attention to the use of waggons and carts for general farm work in these columns we now propose dealing with it. It has frequently in times past been discussed by farmers under the heading of "*Carts versus Waggons*," and the discussion amongst farmers and implement makers has contributed in a wonderful degree to the practical application of the various points, for it has removed many old prejudices and preconceived opinions. Reform is required in certain farm implements, rendered imperative by the use of steam power in so many of our farm operations, and it is necessary to consider how far the various suggestions connected with labour-saving machinery has tended towards changes never previously contemplated as regards economy.

Steam power connected with agricultural operations has made such rapid strides, and has enabled the farmers to do so much, that the necessity has arisen to consider the best mode of gathering the crops—whether carts or waggons are the best for this purpose, which is the least expensive and the quickest way of gathering and stacking the various crops. Expedition is certainly a leading point, especially when in a harvest like 1881 and some previous years, in which but short periods of fine weather only occurred, and are circumstances which will not be soon forgotten. In consequence, any reform which can under the head of economy be introduced will be sure to command the attention of the home farmer, and in order to effect the necessary changes in the constructions of our carts and waggons we must enlist the attention and co-operation of the implement makers. We shall first address ourselves to the policy of employing carts or waggons under particular circumstances, and defer our suggestions of the alterations required for a short time.

The advocates of the use of carts in preference to waggons are yearly increasing, and numbers can be found who employ only carts upon their farms, and we are therefore bound to listen with attention to their reasons for this practice. In fact, their arguments in favour of two-wheeled carriages for farm work are all based upon one word—economy, both as regards the first outlay as well as the saving in manual and horse labour. The kind of cart we recommend will be stated further on; but it has been found upon a farm of between 400 and 500 acres that six carts with frames complete and strongly made, in consequence of being convertible from light to heavy framework, have been sufficient to do the whole work. This contrasts favourably with the use of waggons, not only in the first cost but also in the question of repairs. It is found in practice when waggons are used that manure carts are required also for laying out and distributing either yard dung, chalk, clay, and other heavy materials. The saving of manual and horse labour is the next point, and both experienced and practical men make the assertion that more work can be done with the same amount of manual labour with carts than with waggons, and give an instance in their proceedings, stating when it is desired to carry a field of corn it would, supposing the corn to be stacked in the field, require three waggons and five horses to work a double fork, and the two pitchers would work together. On the other hand, if five carts and five horses were used the pitchers would be separate, and boys would lead the horses. It is an accepted fact amongst practical farmers that two men pitching separately will do more work than two working together, so that the same horses and men will certainly carry more corn with carts than with waggons.

There is an article on "*The Advantages of One-horse Carts*" in the sixth volume of the *Journal of the Royal Agricultural Society of England*, which states—"When working on the double-hand system the waggon must be set, as well as may be, to accommo-

date both pitchers, and if the man on one side has the wind or the higher ground in his favour the man on the other side must have a corresponding disadvantage; but the single man pitching up to a cart may turn it about as may be most convenient to himself, taking the benefit of the wind or the higher ground as he pleases." Many people object to the use of carts on the ground of their being more unsafe upon hilly land, and the great likelihood of getting the horses hung up. On the other hand, the evidence of numbers of practical men states that they have met with no accidents of this nature, although no farms could be much more hilly, with some of the most inconvenient gateways, than those whereon the carts were in constant use. With regard to the saving in horse labour, which we consider a great item, for a horse in a cart carries part of his load. This, by the amount of steadiness it gives, enables him to draw the remainder of his load with the greater ease. On the other hand, picture two horses between the shafts and two at length drawing a waggon; which, we ask, would appear to the greater advantage? We are quite aware that the opinions upon this subject will meet with many objectors, for we suppose that at the present time, even after the numerous improvements which have been made in both carts and waggons lately, that a large number of farmers would prefer the waggon. This circumstance shows the necessity of our giving the information we possess to the home farmer without favour or prejudice. Still, it is not presumed for a moment that anyone having a number of waggons can be expected to burn them or sell them at a very low price; but it seems important for a young farmer on entering a farm to consider whether it is not of advantage to lay out his money on carts which would accomplish all the purposes of farm work, instead of on carts and waggons as well.

The question is not so much between carts and waggons as whether carts alone could be used instead of both waggons and carts. One great advantage of carts is that they require a less outlay at first; then, from being low, they could be loaded with much greater facility; next, a single horse could no doubt draw a load better with some portion of the load on his back, and with less labour on two wheels than on four, on four wheels there being of course greater friction at the axletrees and a greater draught for the horses to overcome. Some years ago some farmers were in favour of Crosskill's carts, but after a trial of some time they found that the advantages were in favour of two-horse waggons, which demanded less care in loading; for farm labourers are not so careful as they formerly were, in consequence of which it is not unfrequently the case that in the middle of haymaking a load has fallen off the carts, an inconvenience which in a busy time is very considerable. It might very properly be urged, perhaps, that this was not the best description of cart—that is, with a small and narrow bed and extending forward and backward above it, which causes the load to press too much on the horse's back in coming down hill, and in going up hill to become tail-heavy. Various inconveniences named would be obviated by the use of what are called the Scotch carts or frames, which have a long low bed and nearly, or may be made quite, as extensive as that of a waggon both as to length and breadth. These have been in use for many years, and numerous good practical farmers assert that they would not use waggons again on any consideration. It is, however, pointed out by the advocates of the previously named carts with frames that there is a disadvantage in the use of the Scotch framed cart—that it was necessary to have small dung carts in addition, and by their use farmers did not save so much as by making one cart answer both purposes.

The question still remains, Which on ordinary farms is the best to be adopted? Before this can be answered we must refer to a cart which has been exhibited, having a long and low bed and an apparatus for shifting the weight of a load backwards and forwards, thus easing the weight on the horse's back in going down hill, or the contrary in going up an incline. This contrivance is good for the purpose and also very simple, for by screwing the cart backwards or forwards in a horizontal direction the object is easily obtained of regulating the draught when in the haying or harvest time, or when loaded with sacks of corn and travelling on the high roads. We have also seen a very neat and cheap cart exhibited, the only disadvantage of which, if it can be so called, is the exceedingly low wheels and the consequent additional draught and labour necessary. It is, however, a choice of two evils. With low wheels there is additional strength to the vehicle. It was, however, constructed at much less cost, and a moderate-sized horse could draw a ton weight, and the further advantage of low wheels is to allow dung or farm produce to be thrown over the side with greater facility.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The employment of the horses has lately, owing to the changeable weather which has prevailed, been subject to delay so far as late sowing of Wheat has been concerned; still there has been the fallows to be ploughed, which in various instances have not yet been completed. With regard to Wheat-sowing, as there will be more than usual sown this year in consequence of the idea which is gaining ground that Wheat after all, except on the lightest soils, is the best rent-paying crop of all the cereals, chiefly in consequence of the low price at which Barley is selling, and considering that this has occurred, too, after the repeal of the malt tax, there seems but little hope of Barley commanding so good a price as was expected. In consequence of this we also approve the policy of sowing as much Wheat as can be sown within a reasonable time, which may be said to be from the present time until the second week in February; depending, however, upon the state of the land and the weather. In the event of the land being very dry and light at the proposed period of sowing we should prefer to sow Barley instead of Wheat. When Wheat is drilled with the land very dry and fine the weeds are nearly sure to gain the ascendancy. In fact, a good preparation for Barley is just the reverse for Wheat, as the land cannot be too heavy and wet for Wheat, if it can only be drilled or sown after the press, and the seed properly buried, and the land laid into the required shape as regards the size of the ridges. We must, however, remember that the land should be quite clean and free from couch grass, and otherwise in good condition, so that a full crop of straw may be expected. In case of any doubt existing upon the latter point the spring growth of the Wheat should be carefully watched, and in the event of the plant losing colour $1\frac{1}{2}$ cwt. per acre of nitrate of soda should be sown broadcast, and immediately followed by the use of the horse hoe, which will not only enable the nitrate to act more quickly and effectually, but destroy a large portion of the weeds. Nothing can show the benefit of wide drilling better than this; and in case the Wheat has been sown broadcast and cannot be horse-hoed, it is but little use to expect the full advantage of artificial manures which may be applied, or the destruction of weeds. In fact, it is frequently hopeless to effect any improvement in the crop in the spring unless the grain is drilled 10 to 12 inches apart between the rows. As regards the time of sowing late Wheat, the earlier it can be done satisfactorily the better; that is to say, December is a better seed time than January, and January is better than February, but especially when the land is close and heavy at seed time, for then the seed lies firm in the land like the early-sown Wheat, and in consequence is less subject to injury by the growth of weeds. It is, however, desirable to sow or drill not less than three bushels of seed per acre at the late season, as the larks, rooks, and pigeons are sure to attack the first sprouts as they appear above ground.

Live Stock.—The horned ewes have now finished lambing, and on entering upon root-feeding it is a good plan to divide the flocks, placing all the earliest ewes and their lambs together and feed them both so that they may all be sold fat at the same time. The ewes which lamb later—that is to say, after the middle of November, may, if some ewes are required to be kept over for another season, be maintained in merely store condition, but the lambs may be fed in advance and liberally upon the best of food. In this way the very best of stock will be available for the next season, as the ewes will be sure to lamb early, and may be kept in larger numbers as store sheep going to fold during the summer, and yet be in prime condition early in the autumn when the lambs fall. Young cattle when intended for the dairy should now be carefully fed in the yards and sheds at night time, with a run during daytime upon the pastures. But those calves and yearlings intended to come out as baby beef should be kept entirely under cover and fed in twos or threes according to age, and singly after they reach fifteen months old. We have never found cattle pay better than under the system of early maturity—that is, kept on the best of food and in a fattening state as calves, and so continued on until they go to the butcher, so that when as fat calves they should never lose flesh at any after period. In this way we have frequently sold young cattle, both heifers and steers, at nineteen and twenty months old to weigh 100 stones of 8 lbs. The value of this system of management was well exhibited by some prize animals just over two years old of great weight and prime quality at Islington Hall Show recently.

POULTRY AND PIGEONS.

POULTRY IN WINTER.

WINTER has begun, or at least we may expect it shortly to begin. It is well to be beforehand with it in the poultry yard. A few precautions would have saved us many losses and much vexation during the last few terrible winters. We wrote long ago about the necessary autumnal repairs of houses; these we suppose to have been attended to. It is not, however, enough to have warm and watertight roosting houses; if severe frost set in, or, still more, driving frosty fog such as we had last January, the poultry must be confined to them, save in the most sheltered situ-

ations. A very short exposure to it causes the combs of many cocks to be frost-bitten, especially if they have been much shown or kept in warm places. No malady is more difficult to deal with than frost-bite. Its effects are not apparent till the mischief is done, and often not at all to an unpractised eye. The gills perhaps swell suddenly, and the unfortunate bird is thought to have a mere cold, and is placed near a fire in absolute torture; or slight discoloration of the comb is the first sign that part of it is practically lifeless. If once frost touches the comb the bird must be kept in darkness in a moderately cool place, and the parts affected gently rubbed with zinc ointment. Prevention, however, which is not difficult, is far better than cure.

It is, of course, particularly desirable, now that the breeding season is at hand, to keep stock birds in the most vigorous health. With this object in view overfeeding must be avoided. There is no time of year at which poultry are so likely to be injured by kindness as the present. Cold stimulates their appetites, and to the ignorant it seems cruel to stint them. The moult of adults is, however, over, and the growth of young birds—at least, such as are fit to breed from—is almost finished. These two great drains on the system have ceased, and the bird at once begins to put flesh on quickly. This is especially the case with pullets, and must be specially guarded against. Overfat hens never produce strong and healthy chickens.

There are probably just now many of our readers who are about to start incubators. Attracted by the clever inventions to be seen at the Crystal Palace and Birmingham, and their neat workmanship, they have made their purchases or given their orders, and are looking forward to large broods emerging from the pretty egg-drawers. Let us give them a few warnings. To begin with, they probably intend to save up a goodly collection of their choicest eggs against the arrival of the much-talked-of machine. Four and twenty hours will, they fancy, be time enough to study its whole working and regulation, and then in all the eggs will go to the one basket, or rather one drawer, to inevitable destruction and addlement! Let us assure the inexperienced that it takes a long time to master the regulation of any incubator. If early chickens are required the incubator should at once be set to work, and, after a few days, a trial set of valueless eggs be put in and hatched out before really precious ones are tried. The regulation of an empty incubator and one full of eggs is a very different matter, so the trial must be made with some sort of eggs.

Another absolutely necessary precaution is to have the thermometer tested beforehand. Many are faulty, and cause the waste of many eggs and much time and trouble. Last year we spoilt several batches of eggs, which all failed in the second week of incubation, because a thermometer registered 2° or 3° above the actual temperature. On the first testing nearly every egg seemed good and duly changed, but subsequently the germ ceased to progress.

The subject of testing reminds us of the very useful leaflets we saw at the Crystal Palace by Miss May Arnold's "egg oven," with diagrams showing the various stages of progress and failure in the incubation of eggs. We should advise all novices in incubation to purchase them. It is easy enough after four days to distinguish between clear and fertile eggs, but the difficulty arises subsequently. From various causes the germ fails at different stages of development. We are naturally fearful of ejecting a good egg, but the presence of a bad one is certainly injurious to those containing living chicks. These diagrams will help us much in discriminating between the living and the dead germs.

Similar precautions should be taken to test the working of all artificial mothers. It is not so easy to "cook" the chickens once hatched as the eggs beforehand, still their well-doing depends much upon regularity of temperature. If there is any doubt about the heat to be kept up the safe side is below rather than above the proper mean.

Another point which needs the first care is the storage of the eggs saved for hatching. It is commonly thought that an egg is an egg, and that so long as it is not absolutely broken it must produce a chicken. Its treatment between its production and the time it is placed under a hen or in an incubator is supposed to be quite immaterial. Only those who have ever sold superfluous eggs for sitting have an idea of the ignorance of the public about the conditions under which eggs are or are not likely to hatch.

In frosty weather an egg is very soon chilled after being laid, especially if the nest be upon the damp ground. It is not enough for eggs to be collected every evening when the birds are shut up. Most of them will long ere that have been frozen, and all chance of the germ ever coming to life be gone. The laying hens, generally few in such weather, must be carefully watched, and the eggs collected before they are cool, put deep in bran or dry sawdust. We say dry sawdust advisedly, for the turpentine in wet

sawdust, we believe, damages them. The egg-drawer, too, must be in a moderately warm room. Without such attention to the preservation of the eggs all the care bestowed on sitting hens and incubators is simply labour lost. The three great requisites to ensure chickens at once early and strong, which are the great desideratum of most fanciers, are—1, Stock birds in strong health, well fed and comfortably housed; 2, Their eggs properly stored; 3, The hens which incubate them well attended to, or the artificial incubators carefully regulated.—C.

"POLISH FOWLS."

MAY I, through your columns, call attention to the fact that at the forthcoming show of the Poultry Club to be held at Cambridge, there is a class for "any other variety Polish"—i.e., any other variety than the three commonly shown. I have guaranteed the prizes for this class, five in number, in the hope of giving some encouragement to breeders of Padue Chamois, White, or other kinds of Polish, which are now almost extinct in England. I trust that those who possess such birds will be good enough to show them; their chance of winning a prize is better than is often the lot of exhibitors.—O. E. CRESSWELL.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at the Charing Cross Hotel on Friday the 9th inst. There were present Messrs. H. R. Dugmore (in the chair), T. W. Anns, R. A. Boissier, A. Comyns, J. C. Fraser, S. Lucas, L. Norris, and G. Vigers.

ELECTION OF MEMBERS.—The following new members were elected—Rev. A. S. Davies, Caxton, Attleborough; E. McMorland, Cockett's Farm, Cudham, Kent; Rev. Laxon E. Sweet, Hullavington Viarage, Chippenham; Sir Henry Thompson, Hurst Side, West Molesey, Surrey; Mrs. G. Ward, Barnett House, Wolverhampton; R. S. Williamson, Rawnsley, Hednesford. The following new associates were elected:—M. W. L. Brooke, Point Cottage, Attleborough, Norfolk; W. Howard, Holborn House, Shanklin, I.W.; Miss M. F. Symes, Nether Cerne, Dorchester.

CLUB SHOW.—Some final arrangements in reference to the Show were discussed, and the Secretary was directed to issue a special advertisement calling attention to the fact that no entries would under any circumstances be received unless sent or posted to the Secretary of the Show on or before Tuesday, December 20th.

DISQUALIFICATION AT BEXLEY HEATH.—At the previous meeting of the Committee held at Birmingham, a communication from the Secretary of Bexley Heath Show in reference to the disqualification of a pen of Hamburgs shown by Mr. G. P. Pointer, in consequence of the comb of the cockerel having been trimmed, had been under consideration. It appeared that a protest had been lodged by an exhibitor, and that Mr. W. J. Nichols, who acted as Judge, had decided upon examination of the bird that the comb was cut, and that the pen should be disqualified. The rule of the Bexley Heath Show providing for such cases was as follows:—

"All protests against awards must be lodged with the Secretary within six hours after the termination of the judging, and must be accompanied by a deposit of £1 ls. Such protest will be submitted to the Committee of the Poultry Club, who, after hearing the decision of the judge or judges thereupon, will decide as to whether such protest is frivolous or made without due grounds, in which case the deposit will be forfeited."

At the Birmingham Meeting the Committee of the Poultry Club decided "that the protest had been made on due grounds, and directed the deposit to be returned to the protestor," but deferred the further consideration of the question of disqualifying the exhibitor from competing at Club shows until the present meeting. It being proved to the satisfaction of the Committee that Mr. G. P. Pointer had purchased the bird at the Crystal Palace, where it had been v.h.c., and that he was thus not directly implicated in the trimming of the comb, the following resolution was passed:—

"It appearing that Mr. Pointer had purchased the bird disqualified at Bexley Heath at the Crystal Palace Show, where it was v.h.c., the Committee of the Poultry Club, while thinking that Mr. Pointer might well have exercised more caution in the matter, do not consider the case to be one calling for disqualification from exhibiting at shows under Club rules."

THE DISQUALIFICATION AT BIRMINGHAM.—The case of disqualification of a pen of White Bantams at Birmingham for having sickle feathers artificially inserted in the tail of the cock, which had been under consideration at the Birmingham meeting, was again before the Committee, and it was resolved that—

"Mr. Sam D. Rhodes be absolutely disqualified from exhibiting at shows held under Club rules."

THE DISQUALIFICATION AT THE CRYSTAL PALACE.—The question of the disqualification of two Malay hens exhibited at the Crystal Palace by Mr. E. M. Le Hurey, and there disqualified, was under consideration. It appeared that the birds had been very properly disqualified at the Palace on the ground that their faces had been cleaned of feathers in the same way as the faces of Game fowl are usually cleaned for exhibition. There was clear evidence before the Committee that the removal of the feathers in this case had been

done under a mistaken impression that the removal of these feathers from the faces of Malays was permissible, and generally recognised to be so. It was also manifest that the feathers had been removed in such a way that their removal would be apparent to a mere novice, and could deceive no one.

Under these circumstances the Committee resolved, "that as the removal of the feathers had been effected by Mr. Le Hurey through ignorance merely, and not with any intent to deceive the Judge, the case was not one which called for disqualification from exhibiting at shows held under Club rules."

SHOWS UNDER CLUB RULES.—A communication from the Secretary of the Liverpool Show as to holding the same under Club rules was read, and a subscription was granted in aid of the funds of that Show.

NEXT MEETING.—The date of the next meeting of the Committee was fixed for Friday, the 16th inst., at Charing Cross Hotel, at 2 P.M.—ALEX. COMYNS, Hon. Sec. Poultry Club, 47, Chancery Lane, London, W.C.

POULTRY CLUB SHOW.—Our readers will note that the entries for this Exhibition absolutely close on Tuesday next, December 20th. Those who have not yet done so should send at once for a schedule to Mr. R. Peters, jun., 7, Downing Street, Cambridge.

ILLUSTRATED BRITISH BALLADS.—Parts 8 and 9 of this excellent work (Cassells) contain several well-known and beautiful ballads, each appropriately illustrated. The principal are—The Five Carlines, Flodden Field, The Forging of the Anchor, The Friar of Orders Grey, Glenfinlas, The Hermit, The Horn of Egremont Castle, and Hugh of Lincoln, with several other smaller pieces.

OUR LETTER BOX.

Crowing Hen (Inquirer).—A crowing hen is in the old proverb associated with a whistling woman, both being deemed unlucky. The origin of the superstition in the former case may be found perhaps in the fact that such hens are frequently unfertile. This is, however, by no means invariably the case, and we should recommend you to give your Andalusian a fair trial before resorting to the extreme measure suggested.

Turkey Hens Wasting (Subscriber).—We fear your hens have liver disease in an advanced stage. The lameness followed by wasting is an almost infallible sign of this. The disease is contagious, so you had best kill the two hens affected at once.

Disinfectants (B. H. R.).—If the runs be small dig them over, and in any case sprinkle with carbolic fluid, sanitas, carbolate of lime, or some other disinfectant. Put a few drops of McDougall's fluid carbolate in the drinking water.

Early Calves (A Seventeen-years Subscriber).—We are not prepared to deny the statement you submit, however extraordinary it appears to be; but the practice of which it is an example is very undesirable, and you are not wrong in describing it as "sheer folly."

Bromus giganteus (M. D.).—This forage plant will not usually produce like Italian Rye Grass when the imported seed is sown in the autumn and early spring months; and as summer forage we prefer Giant Saintfoin or Lucerne, both for quantity and feeding value, the latter especially when a quick succession is required as green fodder for dairy cows. There is, however, always the question of soil to be considered, and we therefore recommend a trial in the nature of an experiment of these four sorts named in order to ascertain which is the best under all the circumstances of soil and the requirements of the animals.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1881. December.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun.	4	30.254	41.7	39.0	S.E.	44.0	44.3	37.8	47.8	31.0	0.038
Mon.	5	30.153	47.1	46.6	S.	44.3	49.0	40.5	52.5	40.4	0.230
Tues.	6	30.239	38.2	38.2	S.W.	44.0	50.4	34.0	63.7	24.8	0.204
Wed.	7	29.810	43.9	42.9	W.	43.4	51.2	33.9	64.9	35.1	—
Thurs.	8	29.933	36.4	35.5	W.	43.6	43.8	33.1	57.8	27.4	0.099
Friday	9	29.609	37.8	37.6	Calm	42.3	40.5	34.6	41.2	28.3	0.921
Satur.	10	29.606	31.6	31.6	N.W.	41.7	39.5	31.2	39.5	30.3	0.138
		29.943	39.5	38.8		43.3	45.5	35.0	52.5	31.3	0.820

REMARKS.

4th.—Fine and dry, not much sunshine.
 5th.—Very wet morning, but fine afternoon and evening; eclipse of the moon very well seen.
 6th.—Thick fog early, clearing off about noon, afterwards fine.
 7th.—Fine bright day, little hazy in morning.
 8th.—Fine all day.
 9th.—Very dark day, with rain and fog; clearer in evening.
 10th.—Snow in morning, soon melting; rain in afternoon.
 A damp week and cooler; the temperature considerably below that of the previous week, and slightly below the average.—G. J. SYMONS.



22nd	TH	Royal Society at 4.30 P.M.
23rd	F	Quekett Microscopical Club at 8 P.M.
24th	S	Exhibition of Fruit and Plants, Alexandra Palace (fourteen
25th	SUN	CHRISTMAS DAY. [days).
26th	M	Bank Holiday.
27th	TU	
28th	W	

DINNER-TABLE DECORATION.

HAVING recently been much engaged in table decoration, and being out of practice, I at first sought for any remarks bearing on the subject that might have been written in this Journal or its contemporaries; but eventually I had to rely upon my own invention. What resulted I propose briefly to relate. It may occur to some that the devices possess no marked originality or superior merit. Probably not, but they met with the approval of my employers, and might, if imitated, be equally as pleasing to other employers. That, after all, ought really to be the sole aim of gardeners. We are paid to gratify our employers' tastes and not to indulge our own fancies, however superior we may consider them, and I ask would-be critics to bear this in mind.

Mr. Luckhurst has recently written in these pages on "The Arrangement of Cut Flowers," describing several tasteful arrangements; but worthy of imitation as these undoubtedly are, they would not meet our case, simply because we have a different class of flowers and vases to deal with and different tastes to study. In the first place the dining-table here is a large one, the number of persons dining every night varying from fourteen to twenty, and, being also wide, central vases with flowers or plants were insufficient. Added to this the table was lighted entirely from silver branching candlesticks, and, as a coloured shade was disposed over each candle, tall March stands or light-foliage plants would be ineffective. The employment of a great variety of flowers was absolutely prohibited. This to some might appear questionable taste, but the result proved very effective nevertheless, and I should not again resort to a mixed arrangement were I at liberty to do so. Overcrowding had to be avoided, and brightness I soon discovered had to be aimed at. For instance, four flat oval-shaped tin troughs belonging to china vases, filled with the brightest Hawthorn berries and Rose hys, intermingled with the fertile fronds of *Pteris cretica albo-lineata*, and fringed with the shining rich green growths of *Escallonia macrantha*, disposed on the cloth between the dessert dishes, were considered too dull; and but for other flat dishes filled with Maidenhair Fern and white flowers, such as double Primulas, Begonias, double Prunus, Deutzias, Azaleas, and Bouvardias, and highly coloured plants of *Dracæna Cooperi* in vases, the table would have been voted a failure.

On another occasion when there were ten dishes of dessert and three candlesticks employed, on each side of the central and midway between the other two of the latter we stood a good specimen of the silver-variegated *Pandanus Veitchii*.

These were in 5-inch pots, placed on small plates, and good green moss (collected a day or two previous in order to remove the earthy smell and to admit of particles of earth and rubbish being readily separated), was banked from the cloth over the sides of the pots. In this were distributed a few plants of the small hardy wall Ferns *Asplenium Trichomanes* and *Ceterach officinarum*. Among these cut blooms of *Pelargonium Guillon* Mangilli were freely dotted, and next the cloth fronds of Maidenhair Fern were disposed. The dessert dishes were placed one at each end and four on each side, and between these last were alternated two *Crotons angustifolius* and three small flowering plants of *Gesnera refulgens*, these being turned out of their pots, the balls reduced, put into small plates, and banked over with moss and wall Ferns. The plants are not much injured by this rough treatment, and the only objection to this arrangement is the difficulty of working clean with the moss, as, unless arranged before the table is "laid," there is a possibility of rubbish dropping into the salt and glasses. To obviate this difficulty, however, we have had a number of half circular zinc troughs made, and in these next season we hope to have *Selaginella Kraussiana* well established. They can then be rapidly filled with flowers and easily arranged in circles or other forms. For the central plants our tinman has made circular trays, the central space of which is large enough to hold either a 5-inch or 6-inch pot, this being surrounded with a narrow trough. These can then be filled with plants, moss, and flowers, carried to the dining-room and placed in position.

The first night we had these, two were filled as follows:—In the centre a good specimen in a 5-inch pot of the beautifully drooping golden *Croton angustifolius*, the pot mossed over, and at the base were disposed large fronds of Maidenhair Fern, next a ring of white Chrysanthemums, and above this large trusses of a beautiful pale rose *Rhododendron*, obtained by forcing. With these between the candlesticks we employed between the dishes of dessert small plants of narrow-leaved *Dracænas ferrea* and *nigro-rubra* and flowering *Pelargoniums* in 3-inch pots. The pots were stood on Maidenhair Fern and covered with moss, in which were disposed a few yellow Chrysanthemum blooms, which by candlelight really appeared to be white. On another occasion different plants were employed, and sprays of *Jasminum nudiflorum* were advantageously substituted for the Chrysanthemums, and richly coloured leaves of *Mahonia Aquifolium* for the Fern fronds. Red Primulas would have been employed failing the more beautiful *Rhododendron*.

These combination groups may strike critical readers as being rather heavy, and so they are, but not objectionally so; at all events no complaints were made to that effect, quite the reverse being the case. After one of these "heavy" nights a "silver" night follows, and this admits of much of the carefully preserved decorating material being again effectively employed, and in a very different fashion. On these occasions silver is largely employed in the shape of two or four candlesticks, a centrepiece, two cups and two oval-shaped receptacles flanking the centrepiece, in which to place dishes of flowers. The dessert dishes are also of silver, and taller than those in ordinary use. With the exception of the two vases, which in one instance were filled with Maidenhair Fern, white flowers and forced Lilac, and on another with white flowers and *Euphorbia jacquiniæflora*, everything we employed was either laid on the cloth or very near to it. The centrepiece and cups standing on blocks of ebony were not surrounded, but the four

candlesticks on one occasion were surrounded with moss, on this being laid fronds of Maidenhair Fern to form a groundwork for a ring of Pelargonium Guillon Mangilli for the two inner, and yellow Chrysanthemum Peter the Great the two outer. The dessert dishes were festooned with leaves of Coleus Verschaffeltii, with a single bloom of Rhododendron in each. At the points of each festoon between the dishes were stood small glass globes containing a single large bloom, facing outwards, of the yellow Allamanda Schottii and a large frond of Maidenhair Fern. On another "silver" night the bases of two of the candlesticks were surrounded, but at no time covered, with moss, Maidenhair Fern, and fair-sized whorls of Poinsettias, Rhododendrons being similarly disposed round the other two. There were fourteen dishes of dessert, one at each end and six on each side, in the centre of these and in a line with them standing the two flower vases. In each of the spaces between these, or sixteen in all, were placed a small circular patch of moss, a frond of Maidenhair Fern, and a single bloom of Allamanda alternating with a truss of Rhododendron. These were surrounded with the above-mentioned Mahonia leaves, with a spray of Jasminum on each, and an irregular line of similar materials connected the whole, an outward curve being given at the base of each dessert dish. This proved a very pleasing arrangement by candlelight, and when re-arranged the next morning to suit the breakfast and luncheon tables was still more effective, the Jasminum and Mahonia contrasting more beautifully.

At Christmas time a somewhat similar arrangement most probably will be adopted, the materials in this instance consisting of sprays of variegated Holly supporting sprays of berried Cotoneaster Simmondsii or Hawthorn berries for the tracery, Primula trusses in variety being disposed in the centre of the circles, while the bases of candlesticks will be surrounded with branches of Solanums of sorts in full berry. Berries seem absolutely necessary for Christmas decoration, and the Solanums will then be sacrificed simply because they do not find so many admirers later on.

On one occasion we surrounded the bases of candlesticks and dessert dishes with the tips of the stock plants of Iresine Herbstii, running through these a line of Mesembryanthemum cordifolium variegatum. This was a simple yet pleasing arrangement, and might be imitated with the tips of old specimens of many beautiful Coleuses, or, where Holly is plentiful, with berried sprays, with or without a few light-berried or fine-foliaged plants. The above does not exhaust our list of devices, but at the same time we should be glad of a few hints on the subject from others more experienced in the practice.—W. IGGULDEN.

PRUNING VINES.

The performance of this operation will soon be general. Some early Vines may have been already pruned, and very late Vines will not be touched for a considerable time to come; but from the majority of amateurs' vineries the fruit has been removed, and the wood should be well ripened. For various reasons amateurs with vineries generally try to make the acquaintance of the nearest professional gardeners, and it is by them that such work as pruning is done; but many others have to do the best they can themselves, and these are always glad of a seasonable word on this and other matters.

The time to prune is as soon after the leaves have fallen as is convenient. When the wood is hard and brown and the leaves have fallen no injury will occur through using the knife, as all danger of bleeding or doing the work prematurely is past. In vineries where plants are grown more heat than is requisite for the Vines may have had to be maintained at times, and this may cause the Vines to remain growing and the leaves to keep green longer than they would do in an open house, and in such cases it will be well to delay pruning until they have reached the state before indicated.

The most prominent buds are generally some distance from the base of the young shoots, and the smaller buds are found near the old stem. Some think that the best shoots will be secured another year from the largest buds; this induces them to allow the young shoots to remain some inches in length, and this in a year or two forms large spur-like growths on the stems of the Vines which are neither ornamental nor good for fruit-bearing. To avoid this as long as possible every shoot should be cut in to

two eyes from the base. Sometimes when the buds are good only one may be left, but two are always convenient against accident, and the outer one can be removed when it is seen that growth in the other is certain. A very sharp knife should be used in cutting Vine wood. Sometimes if a young shoot has started from the main rod this may be left to bear fruit, and the nearest spur to it, especially if it is large, may be cut away.

Young canes generally have some small side growths which require cutting from them, and the top must be cut neatly. I do not think there are many young Vines cut in so far now as they were at one time. When a clean, strong, well-ripened cane has been secured it is not cut three parts down, but most of it is retained for fruiting, and this is found to be economical in every way.—A KITCHEN GARDENER.

THE PROPAGATION OF HOLLIES.

It is not easy to understand what becomes of the thousands of Hollies annually raised by seeds, cuttings, and grafting. They, however, find a market, or their propagation would not be so vigorously pursued as it is. The common Holly (*Ilex Aquifolium*) is raised from seed, and other kinds also that produce berries freely. After the berries are gathered they should be allowed to remain in a heap for twelve months until the pulp is decomposed, and then sow them in the early spring. This is a quick and ready way of propagation, but much care is necessary before the young plants attain a saleable size. In some instances the losses are numerous from either drought on the one hand or the severity of winter on the other. In spite of these drawbacks large numbers are raised from seed. August or the early part of September in some large establishments is the time preferred for transplanting seedlings to their permanent positions. Those who practise this contend there are less deaths, and that the young plants start with greater freedom and are much less liable to suffer from drought than if transplanting were deferred until May.

Nearly all good varieties are increased by cuttings as well as grafting, and some few by budding, but the latter I have not seen carried out extensively. *Ilex Hodginsii* is largely propagated, and in the majority of instances by means of cuttings. The young and well-ripened wood should be selected for cuttings. Ripe wood only should be chosen as far as practicable when it is not really necessary for the cuttings to be made with heels. This, however, is looked upon by some of great importance, and wood only is employed that can be furnished with heels. This is of real advantage in the case of any wood inclined to be soft, or in seasons when the wood has not well ripened. But when thoroughly ripe the cuttings appear to root as well without as with a heel. In either case the cut at the bottom should be clean and the operation performed with a sharp knife. The leaves should be trimmed off up the stem about 2 inches, and that part must be inserted into the ground. The cuttings should be 3 to 4 inches long, and must be inserted as soon as made, and a large percentage then root.

Holly cuttings are generally inserted after all the Conifer cuttings have been finished. Glazed handlights or boxes are prepared in the same way as those described for Conifers. Some use good-sized low frames for Hollies, but I consider the boxes are the best, as they fit close down upon the soil and can be kept closer than a frame. Success can be achieved either way. When the cuttings are inserted it is not always wise to give a good soaking of water as recommended for Conifers placed in several weeks earlier, as the material may be moist enough. The autumn is often far advanced or winter approached by the time all these cuttings have been inserted. If water is supplied the soil might be in a saturated state when severe weather sets in, and such a condition is neither desirable nor beneficial. The soil and cuttings often become thoroughly frozen during the winter; no apparent injury results, but it is advisable, in case of very severe weather, to cover the boxes with some protective material.

The spring and summer treatment is exactly the same as that described for Conifers, only the frames may be required to be kept over them for a little longer period of time. Some of the Silver and Golden kinds grow slowly at first, and may be late in making their growth, and in consequence require protection during the second winter. None is disturbed until the second year, when the green and stronger-growing kinds are planted out about 6 inches apart. The weak-growing kinds must remain until large and strong enough for planting. After the young plants are rooted they must not be allowed to become crowded before giving them more room.

The common Holly is used as a stock for the delicate and choice kinds of Golden and Silver varieties; in fact, many green kinds are also largely grafted. There can be no doubt that plants are

obtained quicker by means of grafting than by raising them from cuttings, and grafted Hollies grow well in after years. Grafted plants of *Ilex Hodginsii* I do not approve of, as I consider the plants grow better and faster when raised from cuttings than if worked upon the common variety.

The stocks for next season's grafting should be potted at once or during the spring. The young plants intended for stocks should not be too strong; if about the thickness of a good quill they are of a suitable size. Those with leaders and likely to make good plants need not be selected for stocks. Where quantities are grown plenty of second-rate plants of equal vigour will be found suitable. Stunted plants should be avoided, because they cannot be expected to thrive after they are grafted. The pots for the stocks should be 3 to 4 inches in diameter. One or two crocks at the bottom will be ample for drainage. Any ordinary soil with a little decayed manure mixed with it will be suitable, and must be pressed firmly into the pots. The lower portion of the stem should be trimmed clean for 3 or 4 ins. before plunging them outside. Their after treatment through the summer should be exactly the same as advised for the stocks employed for Conifers.

The operation of grafting (fig. 87) is generally performed as early as convenient after the Conifers are finished; simple splice grafting is, however, generally adopted. They succeed well in a shaded span-roofed house that can be kept close and the temperature from falling below 50° in their early stages. The plants must be kept well supplied with water, and syringed at least twice daily, until they become united to the stock. I have seen plants afterwards wintered in cold frames, and finally placed outside towards the end of February or early in March. Circumstances sometimes compel this treatment, but it is not to be recommended. Hollies, as a rule, take well when properly grafted. The house in which they have been placed should if possible be devoted to them during the winter. After they have become thoroughly united fire heat need be employed only to exclude frost. They may be gradually hardened by February, to be placed in cold frames where they can be protected for a month or six weeks longer. The top portion of the stock can be taken off when removing them to the frame. The young plants should have a small upright stake to protect the graft from being broken before and when first planted out. When thoroughly hardened the plants can be arranged outside until a convenient time presents itself for them to be finally planted out.—W. BARDNEY.

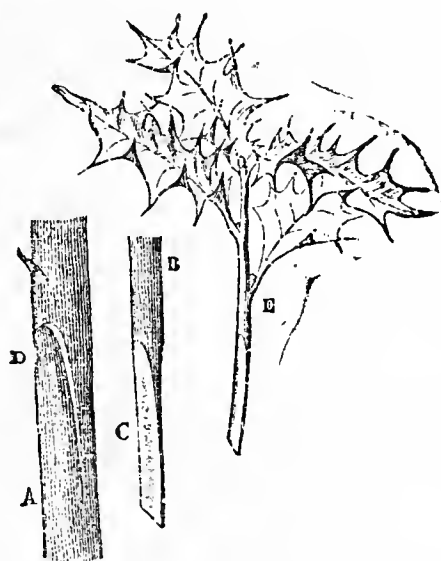


Fig. 87.

AN APPLE ELECTION.

As this has been an exceptionally good year for Apples, and brought many almost unknown sorts to the front, I shall be pleased to carry out another Apple election if your readers who are growers will forward me a list of the best twelve kitchen and twelve dessert kinds as a sequence for the season—Blenheim Pippin, when named, to be placed in the former. I shall publish the result in your paper early in February if possible.—LEWIS A. KILLICK, *Mount Pleasant, Langley, Maidstone.*

P.S.—Any notes on the varieties will be welcome.

[We shall be glad if growers will send lists, with such notes as they desire to append, to Mr. Killick at an early date, so as to enable us to publish the results before the close of the planting season.—ED.]

LEICESTER RED CELERY.—The best Celery I have ever grown is Harrison's Leicester Red (the seed from selected heads in original packets obtained through Messrs. Hurst & Son). It is very large and of remarkable solidity, the solid portion being quite 3 inches thick, crisp, and of a fine nutty flavour. Out of many rows planted

out direct from the seed bed on hot sandy land at various times—early and late—through the past summer and autumn, not a single plant has shown signs of running to seed. Better Celery it is impossible to have, and as the circumstances attending its position and growth this season were not especially favourable for the production of good Celery I shall not hesitate to adopt it as a first-rate market sort.—T. LAXTON, *Bedford.*

VIOLET PRINCESS OF PRUSSIA AND OTHERS.

IN reply to Mr. Beachey's observation at page 515—viz., that I may not have given Princess of Prussia Violet a "fair trial," I may state that I have it now in alternate rows with Victoria Regina in a frame some 60 feet long and 4 feet wide which contains five rows of plants—i.e., three of Victoria Regina and two of Princess of Prussia, and it was grown in a similar manner last season, my plants being kindly furnished by Mr. Lee in the spring of 1880.

All our Violets are grown under similar conditions—viz., suckers or young rooted runners are planted in spring in well-enriched soil, and in late summer or early autumn are transferred with good balls of roots to pits or frames. The "new comers" have the same fare as the older sorts, hoping thereby to arrive at a satisfactory estimate of the different varieties—some twenty double and eighteen single.

Princess of Prussia had with me this autumn flowers 1½ inch across, exactly the same size as Victoria Regina under the same conditions, and has not produced one-half so many flowers as Victoria Regina, and it was the same last season, hence no more special mention was made of it at page 408 (Nov. 3rd) than was warrantable. Princess of Prussia bears a striking resemblance to Victoria Regina, but is not so hardy nor so free either in growth or production of runners. It certainly is, as your engraving portrays, a fine Violet, but I must say that with me it has not answered Mr. Lee's description as the best Violet for autumn flowering, which was given when the plants were sent in 1880.

Prince Consort has bloomed freely this autumn, yet not so freely as Victoria Regina. Some of the blooms of Prince Consort were 1¾ inch across, with a footstalk 9 inches long; Victoria Regina 1½ inch, and footstalks 7 inches long. Princess of Prussia 1½ inch, and 6 inches in the stem. It is only by comparative experiments under similar circumstances, keenly observing and carefully recording the results, that a correct estimate of the different varieties can be obtained. I have the following varieties, and shall be glad of any other—

Singles.—Victoria Regina (Lee), Prince Consort (Lee), Princess of Prussia (Lee), Odoratissima (Lee), Argentæflora (Lee), White Czar, Albiflora, Odorata, O. alba, Obliqua striata, Rubra simplex, Russian (floribunda), Suavis (Russian true), Russian Superb (London), Rubra simplex, Devonensis (?), Crimean (?), Giant (?), Czar.

Doubles.—Neapolitans De Parme, New York, Marie Louise (?), Marguerite de Savoie, Venice, Princess Louise, and Duchess of Edinburgh. King of Violets, Russian or double purple, Belle de Chatenay, and its variety cærulea, La Reine, Blandyana, Parmænsis plena, Patrie, Queen of Violets, Rubra plena, Arborea plena (?), and Arborea alba plena (?).—G. ABBEY.

POTATOES IN RAISED BEDS.

POTATOES have been so excellent in quality and quantity this year that it would appear on first thoughts useless to give advice to amateur and young growers, much more useless to give our results of the past season's planting; and yet on second thoughts—and second thoughts are often the best—I send to the Journal my experiences, and for this reason—viz., I prepared and planted my beds in anticipation of a possible bad season—i.e., a wet spring and summer.

Nothing, I suppose, is worse for the Potato than ill-drained heavy soil and a sunless aspect. In this belief I planted all my Potatoes this year as follows. A series of beds about 75 feet long by 6 feet wide were thrown up at an angle of about from 20° to 25°. The aspect was south, thus I obtained the maximum amount of sun heat and a natural as well as sufficient drainage. Six beds were thus formed, paths about 15 inches wide intervening. I planted as follows—1, Porter's Excelsior, the premier position nearest the wall; 2, Beauty of Hebron; 3, Snowflake; 4, International Kidney; 5, Magnum Bonum; 6, Rivers' Royal Ashleaf.

Owing, perhaps, to having been planted ten days earlier than the Ashleaf, and profiting also by the close proximity to the south wall, Porter's Excelsior was the first to be ripe. Then followed Rivers' Ashleaf, Beauty of Hebron, Snowflake, International Kidney, and Magnum Bonum in the order named. I had not a single diseased

tuber. The quality was excellent. For six varieties at a large show, and where the competition was good, I was easily first, and the show was on the 21st of July. The Magnum Bonums grew after this date of course, but the other five varieties were quite ripe. The varieties I exhibited were the above named, and every tuber came from these beds.

My friends who came to see me in May and early June said, "Ah! this system of yours is all very good in a wet season, but when you have a season like the present, no rain for weeks, it is absurd. Your Potatoes will be no bigger than marbles!" Now my argument is this: If with southerly sloping borders I get a good crop of excellent quality, of fair size, and perfect form, and this in a marvellously dry season, *à fortiori* in a wet season, the results would be still better. In the same field, and immediately following upon No. 6 bed (Magnum Bonum), I continued Magnum Bonums on the level, followed by Schoolmaster, Lapstone Kidney, and Porter's Excelsior, all on the level, and the results were not equal to the former mentioned.

The manure, Hill's first quality Potato manure, was equally distributed, no favour shown. The soil, a light very fibrous loam, pasture land double-dug two years before, so that the soil was good enough and of the proper texture. Very little ground is wasted by throwing up the beds, and but little extra labour required. I am firmly convinced that very many gardeners have yet to learn what very powerful factors in successful Potato-growing are sun light, sun heat, and good and rapid drainage.—J. A. W., Alderminster.

PEARS

I SEND the following notes respecting our Pears this year. We commenced gathering fruit of Citron des Carmes in August from trees on a south wall. The crop was good and the quality all that could be desired; from espaliers many of them were very much cracked. Doyenné d'Été against a wall with a west aspect had a fine crop, and the fruit of good size and quality. Green Chisel, only fit for preserving whole, a fine crop from pyramids. Jargonelle against a south aspect, moderate crop, fruit fine and of fair quality; from standards and pyramids the fruit was of better quality. Flemish Beauty on a south aspect had a moderate crop of fine fruit of first-rate quality. This fine Pear requires care to have it in good condition. Of pyramids Hesse had fine crops of good quality; it is a useful October Pear. Urbaniste against a wall with a south aspect bore a splendid crop of the finest quality. Louise Bonne of Jersey on an east aspect had a splendid crop of fine fruit and of the very best quality; many fruit on pyramids of this kind were deformed, cracked, and of little use.

Pyramids of White Doyenné only had a moderate crop, but of good size and quality. Duchesse d'Angoulême on a west aspect had a small crop, the fruit large but poor in quality, and only fit for stewing. Marie Louise produced a magnificent crop, all that could be desired in size and quality. From pyramids against a south wall, and espaliers from a wall with east aspect, they have not kept so well as usual, some of them decaying at the core. Vicar of Winkfield on a wall, west aspect, had one of the finest crops I ever saw, the fruits of great size, but not one of them has been useable, for all have been affected by a kind of dry rot, which is a great disappointment. Beurré Sterckmans against an east aspect had a poor crop, not ripening well. Wall trees and pyramids were alike useless. Pyramids of Beurré d'Aremberg had a bad crop and almost useless. The fruits of Knight's Monarch have reached a good size, but instead of ripening have withered. Of Beurré Diel we had a fine crop from trees on an east aspect. We have not had them so fine for many years; from standards and pyramids they were quite worthless. Trees of Winter Nelis bore a grand crop against a wall with a south aspect. It is all that could be desired in every respect, and is worthy of general cultivation. Espaliers of Seckle had a scant crop, but of good size and of the very best quality. It is much esteemed for its musky flavour. Trees of Glou Morceau on a west aspect bore a fine crop, but the fruits have to ripen yet. Espaliers of Althorpe Crassane produced a fine crop of large Pears, but they seldom ripen with us. Easter Beurré had a moderate crop of fair size, but many cracked and useless. Catillac had a shy crop but large fruits from pyramids. Uvedale's St. Germain a fine crop, from half-standards, but not so large as we have had them.—PYRUS, North York.

PELARGONIUM CANDIDISSIMA PLENA.—Referring to the interesting account by "J. W." of a visit to Longleat, in the Journal for November 3rd. If Mr. Taylor has not tried candidissima plena as a double white Zonal Pelargonium I think it will be worth his while to do so. I had it from Mr. Pearson of Chilwell, and out of several double

whites which I have it was the only one which did not become tinted with pink with the summer sun. Amelie Baltet unless shaded was never pure white. I have not enough heat for winter flowers, so cannot say how it would do to depend on all the year round.—SAN JUAN.

A ROCKERY FOR ALPINE PLANTS.

ALPINES FROM SEED.

(Continued from page 520.)

THOSE who think that the best way of raising rare plants from seed is to imitate natural conditions, must remember how very small a proportion of the seeds of each plant vegetate and come to maturity in their native soil. It is true, that if you could counteract all adverse influences all seeds would germinate more readily if sown as soon as ripe, but as in most cases they would have to remain in the soil from summer until the following spring, and would meanwhile have to contend against many enemies, it is found better in practice to store the seeds until the natural time for their germination arrives. Not but that many seeds will grow at once if sown as soon as they are ripe, but keeping young seedlings through winter is often so troublesome that it is generally avoided except where experience has proved it to be the best plan. On the other hand, the seeds of some plants germinate slowly and sparingly after being stored, and many often remain in the soil a whole year or more before showing signs of life. The question will be asked where to get seeds of alpine, and at present I know of only two persons who keep for sale good collections—Mr. W. Thompson of Ipswich, and Mr. Fröbel of Neimünster near Zurich. It requires an expert and a microscope to test the soundness of small seeds; but when seed fails it is more likely to be from the imperfection of some condition required for success than of the seed.

The hints I am about to give refer more especially to such alpine as are difficult to rear, but may be taken to apply to other choice plants which are delicate in their young state. The seed of all such plants should be raised in pans under glass, and the time of sowing should be early spring—say the middle of March. As a rule I avoid all artificial heat, but especially the heat caused by the fermentation of manure or any vegetable matter. I use the common seed pans about 12 inches square and 4 deep, perforated at the bottom, which should be covered with about an inch of large crocks for drainage. I then fill up with equal quantities of soil and limestone, or other hard stone, broken to sizes from that of a walnut to that of a wild nut. The soil is composed of equal quantities of coarse sand, loam, and peat finely riddled. I do not like leaf soil, as the flat pieces of leaf often obstruct the growth of the seeds. The greatest obstacle I have found to raising small seeds is the growth of fine lichen or moss on the surface of the soil, either before or after the seed has sprouted. The germs of this moss are either in the soil or in the water used, or both. We must do our best to obviate this difficulty. I have tried using burnt earth for a depth of a quarter of an inch on the surface with advantage; but more than this is desirable. It is a good plan when the pans are filled to dip them in boiling water, which will kill the obnoxious germs and seeds of weeds. They must be allowed to dry again before sowing the seed, for although I have seen that some recommend watering the soil before sowing, a dry seed bed is best. Small seed need not be covered with soil; something like a large paint brush passed gently over the surface will bury it sufficiently. We must now consider watering, which is a very important item. For the avoidance of the germs of moss use only water which has been boiled. A gallon will last a long time. The surface should be sprinkled often enough to prevent its ever becoming quite dry; a waterpot with a very fine rose or a fine garden syringe, not aimed at the seed pan, but directed upwards so that the water falls on the soil in fine spray, will be found the best. Some recommend never watering the surface at all, but dipping the pans into water to within an inch of the rim, so that they are watered from below. For the most delicate seeds I have seen a saucer used filled to within an inch of the rim with the finest soil, and a bellglass of less diameter fitted over it. In the angle between the rim of the saucer and of the bellglass wet sphagnum has been laid, which waters the seed sufficiently by the trickling drops from it. Exposure to heavy rain and full sun must be avoided, and slight shading given on bright days, especially when the seedlings are up. Sow thin: when seedlings touch one another they are too close, and if they are not large enough to transplant when they touch they will be damaged. Transplanting is an advantage, even if they are moved only to another part of the same pan merely for the sake of transplanting, as it improves the growth of the roots. Of course air must be given every day.

The after-treatment of alpine must depend upon the kind and

the rate of growth. Some must remain in the pans after transplanting till the second year; others may be transplanted for the first winter to store beds, constructed by raising the soil against a south wall a foot above the ground level, and surrounding it and mixing it with stones. These miniature rockeries make very good nurseries. One word about the time which we must allow before we despair of the seed. If it is choice I keep the pan, sown in March, until April of the following year, and am sometimes rewarded for my patience; but as a general rule the longer it is before seed grows the less likely it is to grow at all. Seed is often condemned as bad when a careful inspection will show that it has germinated and has been eaten by slugs in its earliest growth. The pans should never stand loose in the frame, but be buried to the rim in sifted coal ashes, and the space between the pans, as

well as the inner sides of the frame, may be covered with fine quicklime. If the frame is in a part of the kitchen garden where slugs abound the outside also may be dressed with train oil and soot, for if slugs once get amongst alpine seedlings no pest is more pernicious. Worms inside the pans are nearly as bad, and the depth of the coal ashes must be sufficient to prevent these vermin from rising into the pan through the holes at the bottom.

If anyone has not sufficient frame room for his seed pans pots may be used; a space of 2 inches left between the top of the soil and the upper rim of the pot, and a piece of glass laid flat over the pot. These pots may be buried to the rim in soil, which will prevent them getting too dry; but they must stand upon pieces of slate or tile to prevent the entrance of worms from below. Slugs must be carefully guarded against; and though it must be

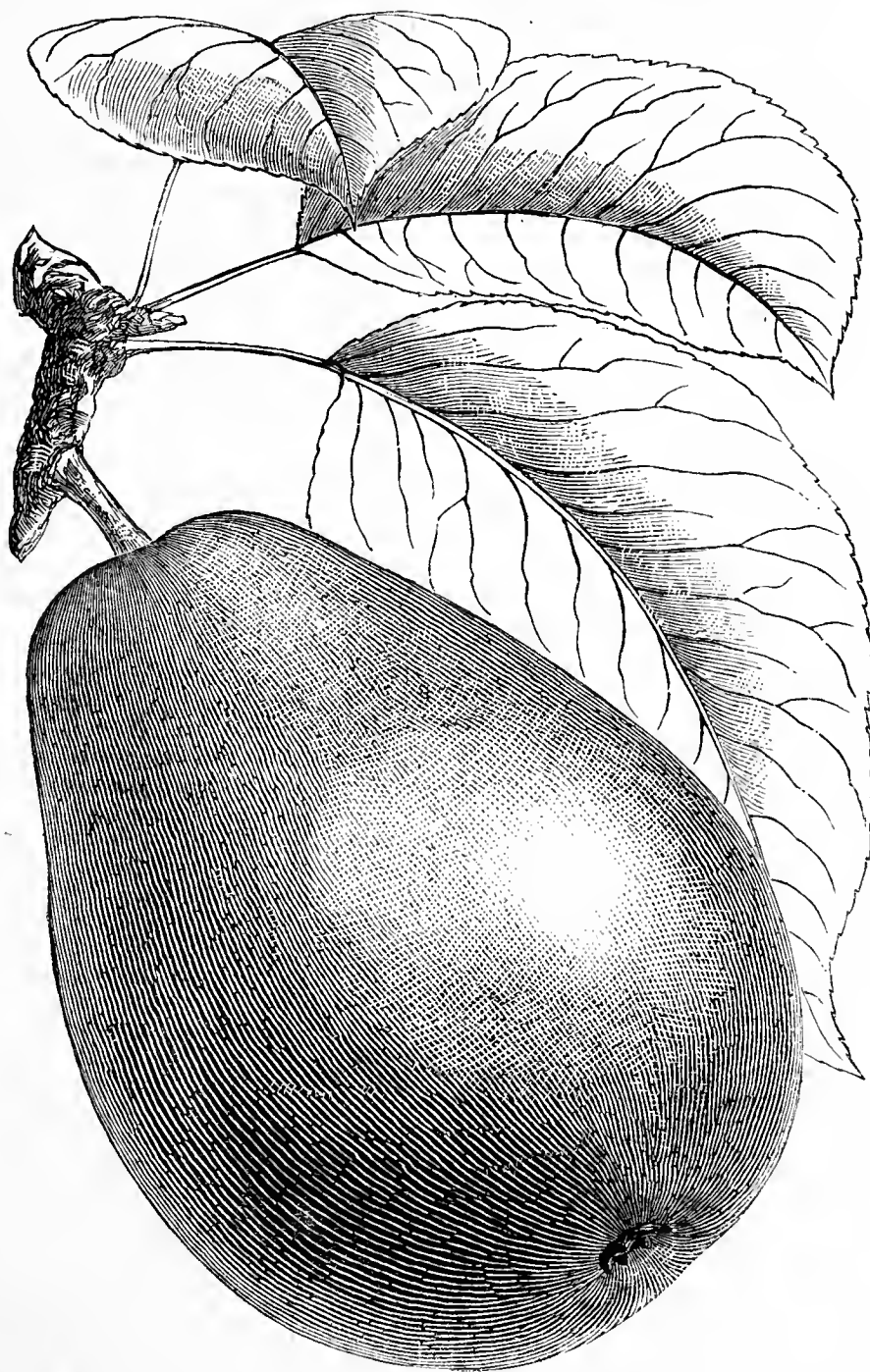


Fig. 88.—BEURRÉ D'ANJOU PEAR.

remembered that most alpine seedlings cannot have too much light when growing, they must be shaded from burning sun. Buttermilk mixed with a little lime is useful to smear over the glass for this purpose, but slope the glass off the pot towards the sun, so as to give as much air as possible.—C. WOLLEY DOD.

PEAR BEURRÉ D'ANJOU.

NUMEROUS as have been the communications that have been lately published on Pears this variety has had little, if any, attention. Is this the result of its having proved unsatisfactory, or is it because it is not in general cultivation? The fruit now figured was sent to us by one of the most experienced

and successful growers of fruit in this country, and he has a high opinion of Beurré d'Anjou, both because the tree is a good grower and bearer, and the fruit is of superior quality. The specimens submitted to us answered precisely to the description of this Pear in the "Fruit Manual"—namely, "Fruit large and handsome, even and regular in its outline, roundish obovate. Skin greenish yellow, with sometimes a shade of dull red next the sun, marked with patches of russet, and thickly strewn with brown and crimson dots. Eye small and open, deeply inserted in a wide cavity. Stalk short and stout, set in a round hole. Flesh white, very tender, buttery, and melting, very juicy, vinous, and with a delicate rose-water perfume. A very superior Pear; ripe in the end of October, and continues in use till December and

January. This is quite distinct from the Ne Plus Meuris of Van Mons."

BLUE ROMAN HYACINTH.

SOME months ago I referred to the above Hyacinth as badly adapted for forcing and worthless as a decorative plant. Messrs. Jones & Sons, Shrewsbury, then wrote against my statement and in favour of the plant. After further experience I can now say it cannot be forced nearly so readily as the white Roman, and when potted at the same time and treated exactly the same is several weeks longer before it flowers. I did think it could not be had before Christmas, but must admit I was wrong on this point, for I have plants just opening their flowers. In my former note I said, if I remember rightly, it might be useful for cutting purposes. I am willing to give it that credit now, but as a decorative plant it is useless. You will be able to judge of its merits from the sample I send by this post. They have had the same treatment as white Romans, which are dwarf, compact, and beautiful. I asked your other correspondents to state in these pages about Christmas when they had a good batch in bloom and I would pay them a visit, but I do not now consider the blue Roman worth a short journey to see. Would Messrs. Jones do as I have done—send you flowering plants of this Hyacinth?—CULTIVATOR OF BULBS.

[The plants received had been shaken from the soil, and their drawn condition confirms our correspondent's estimate of them; the flowers might be useful when cut, but the plants sent are worthless as decorative objects. The leaves are exactly 15 inches long, and the longest spike has seven flowers.—ED.]

THEORIES IN VINE CULTURE.

MY name, or rather my *nom de plume*, has been used with much frequency by those who have taken part in the discussion now going on under the above heading in the pages of the Journal; and as much of what I said when writing before on the subject has been misconstrued, much misunderstood, and not a little misrepresented, perhaps you will allow me space to answer some of my critics, to explain what I at first meant, to give my reasons for the opinions I hold, my reasons for holding them, and my practice and its results; for I think that only thus shall we ever be able to perceive each other's meaning clearly, and only thus enable the body of your readers who are interested to understand and to judge which of the opposite systems so keenly advocated by the different sides is best, and which safest to adopt or reject. Perhaps this method, if followed properly, will also enable us to discuss the real question at issue and to avoid the large number of side, or even irrelevant, questions which have been introduced into the discussion as it has progressed, more especially by Mr. Taylor.

First, then, let me "defend a system I am practising" by noticing a few of the points which have been made prominent in the discussion. The first thing I object to is the constant reiteration of such phrases as the following—"A few leathery leaves are preferable to a greater quantity of thin papery foliage;" "foliage which is thin and which cannot be acted on by the light is not only useless," and so on. The only meaning such sentences can have is that one side advocates poor, thin, overcrowded foliage, and the other the opposite. I presume Mr. Bardney can appreciate the advantages of sturdy foliage thinly enough placed to allow of sun and air acting their part; and as for your humble servant, he has often pointed out the necessity for such conditions. That, then, is not the question, for such has never been disputed; neither is the amount of restriction to which Vines ought to be subjected after the structures in which they are grown are filled. Mr. Iggulden's latest on this point, and also what Mr. Taylor says I can agree with at once, and practise similarly so far as is possible under my present circumstances; and as Mr. Bardney has been all along labouring to show the benefit of such a system, with certain but not very important modifications perhaps, I presume he also will agree that neither is that the question.

The question now is whether Vines in the first few years of their existence are benefited by being allowed to make as much growth as possible—that is, fill the house fairly with foliage, or by having that growth restricted to from 4 feet upwards, but never more than two-thirds of the rafter. Having had something to do with both systems, my experience is that the more restricted Vines are incapable of doing the same work as those treated to what one writer calls the "exhaustion system," but which I call the strengthening system. Ten years ago I planted two vineries the borders of which were composed of material brought fully ten miles, and your readers will understand that the expense of

that would scarcely be incurred for inferior material. The borders were mixed and made on orthodox principles, and the Vines planted and trained very much in the way Mr. Iggulden and others advocate. The results were good, but I now think a year or two was lost in filling the house. Four years ago we planted another vinery with Vines struck the same spring. The border was composed of poor material, two-thirds being turfy soil from macadamised roadsides, and the remaining third fibreless loam not quite of the best description. In this was mixed some lime rubbish, horse droppings, and bones, but in less quantity than in the more favoured borders of the other two. The Vines were not allowed to grow exactly "Bramble fashion," but the first year they went to the top of the house, when they were stopped. The laterals were allowed to grow till the house was fairly filled, and all further growth kept down. To fully ripen the growths firing had to be practised far into autumn. Most of the canes were remarkably stout when cut down just when they were about eleven months old, but one or two did only moderately. In planting them we used some decayed weeds and a little manure to give them a start, and round one or two of the Vines the soil produced a fungus which attacked and weakened them, hence their lagging. The permanent canes were cut down to about 18 inches from the soil. Those of your correspondents who have taken sides with Mr. Iggulden will say that I had then only 18 inches of stem left. In the case of the weakly Vines I had not much more, and in the case of the restricted supernumeraries certainly the stems were above ground; but in the case of the incomparably thicker permanent Vines I consider I had much underground stem, and I think Mr. Inglis might have thought what he was writing when he objected to my calling these by their right name. Mr. Inglis evidently prefers wrong names.

Next year the Vines had the same treatment. They were never touched till they were at the top of the house, and then they were stopped. The laterals were again allowed to develop, and were stopped exactly as if they had been fruit-bearing. As Mr. Iggulden says, many of the main stem leaves fell off in consequence of the rapid swelling of the canes after all the growths were stopped. The bark, too, split and tore from the same cause. The falling leaves gave us little concern, for we doubted not that those on the laterals would carry on the work instead, and we were not mistaken.

The difference between the restricted supernumeraries and the permanent rods was the second year very great, and in favour of the permanent Vines. The next year they were fruited, having been in winter cut down to 7 feet. Those who maintain that under such extension as this the lower buds are inferior, will, perhaps, be surprised to hear that the smallest bunch in the house was fully 2 lbs., and several were over 3 lbs., while seven bunches were taken from every cane save two, and one of these was one of those which suffered from the fungus attack. It was only allowed to carry two, and the other carried nine bunches, which, aggregately, weighed 19½ lbs. Two of these bunches were awarded the second prize at one of the largest shows in the kingdom. This was against seventeen competitors. I only mention this as proof that the Grapes were well finished. Such crops I never saw taken from "restricted" canes of the same age. But perhaps your correspondents on the other side will say that the above is not particularly great. I do not say it is, and with my choice of materials for border-making I should not fear to surpass it greatly. Perhaps they will say that the question is, Which system will produce greatest permanent fertility? I am not forgetting.

The next year, in pruning, 6 feet more of rod was left, which was rather too much, for the lower buds on the upper 6 feet did not break so strongly as was desirable; on these no fruit was left, but bunches were left on all the other spurs. I ought to say that the Vines are only 3 feet apart, so, as to give them proper span, the rods are lowered and the laterals trained upwards, and the spurs are thinner than usual. That year the rods carried eleven bunches on an average—fully equal to the first year's. This year the weakest Vines carried thirteen bunches, which weighed together 27¾ lbs., and the strongest seventeen bunches, which weighed 46¼ lbs. Some of the bunches were over 6 lbs. on some of the other, but the aggregate weight I cannot give. The whole was not weighed.

Every year the house has been as full of foliage as if the Vines had been twenty years old, and to this chiefly we attribute the power of the Vines being sufficient to carry such crops. I consider that this year I had a full crop, and cannot hope that the weight will increase even with the increase of laterals, for this and last year the house was as full of leaves as could be fully acted on by sun and air, and I believe their working power was fully taxed.

There is one point in my practice which I have not referred to,

but to which I attach much importance, and which is seldom or never mentioned by cultivators. I have no doubt that the fruit appropriates the materials as fast as the leaves manufacture them. If not, then the crop is not a full one. I consider my Vines are exhausted, temporarily, by the time the fruit is ripe. While they are ripening I take care to feed them liberally on till the leaves turn yellow. As the fruit is rapidly used, I keep on firing after it is ripe and after it is cut on into autumn till they are no more fit to store future supplies. I feel certain that this enables the Vines to recoup their strength to the full. Further, I start them early enough in spring to allow of all this being done with the sunlight of August, September, and October.

So much for this house. And now for the two before mentioned. The only real difference resulting from the different system of treating young Vines is, that restricted Vines are just two years longer in arriving at the full bearing stage, and cannot in the meantime produce so much without exhaustion. In the one case it only takes three, in the other five. Mr. Iggulden grows and ripens a certain amount of growth the first year. I grow and ripen twice as much, taking into account the thicker canes and longer laterals. Mr. Iggulden will certainly do it in less time; but I consider it more economical to keep fire on a few weeks longer, for in the end time is saved. Mr. Iggulden thinks he takes less out of his borders. This is only looking at the surface. In the longer time taken to fill the house quite as much will be cut away before the house is filled as in the other. The one system needs more taking out the first year, but I consider that is hardly worth considering. More, it is no great task to put into the borders exactly what is taken out, for that is easily ascertained. The idea that any great amount of the Vine's food comes out of even the best border is, I think, a mistake. I will endeavour to reply to Mr. Taylor and another correspondent in a future issue. —SINGLE-HANDED.

THERE is one point belonging to this subject which has puzzled me many times, but which "SINGLE-HANDED" in scientific way disposes of very summarily. He says at page 420, "Mr. Iggulden thinks, at least he says, that great masses of roots are useless in spring because they do not move when the buds move. No, they do not, and neither do they when the roots are few. And why should they? What would it benefit a Vine before it has its leaves mature enough to elaborate sap, to be filled with watery crude sap fresh from the roots? Until Vines have made leaves working roots are not wanted; they must both work together." "SINGLE-HANDED" has written so much that is sound and good that we have come to look on him as a scientific authority of late, and treat anything he might say as almost beyond question: that is my excuse for again reverting to the subject.

In the first place let me assure your correspondent that leaves and roots do not always work together in the case of the Vine, but that during one part of the season the leaves are active by themselves, and at another time the roots only are active. This happens, too, with all deciduous plants with which I am acquainted, but as far as I know the Vine is unique in its habit of growing full-sized leaves before root-action commences. The last-mentioned part of the subject is now generally known and acknowledged, but the other part to which I have alluded appears not to be so well known, at any rate it is not known to "SINGLE-HANDED." It is this: that the roots of a healthy Vine continue active long after the leaves have fallen. I am not now speaking of cases where the leaves fall prematurely from bad treatment, as happily I have had no experience with such Vines of late years, but after the leaves have naturally assumed their autumn colours and fallen one by one the roots will be found to be in an active condition, probably more so than at any time of the year. This lasts for several weeks; indeed it often happens that when Vines in pots which have been treated in a common-sense sort of way are placed in warmth for forcing, that the roots are still active and remain so till just before the buds start, when they go to sleep, some of them probably for ever, and a new start is made after some of the leaves are full grown. The leaves themselves are the indicators of the time when this happens, for the bluish colouring matter may be seen in patches before it has mingled with the yellowish material already in the leaves to form the bright green. So you see the question "What would it benefit a Vine before it has leaves mature enough to elaborate sap to be filled with watery crude sap fresh from the border?" does not carry in itself its own answer, as "SINGLE-HANDED" seems to have supposed it would.

That there is circulation and elaboration without foliage I have had ample proof. I can mention the case of a Peach tree which one season was overdosed with an insect-killing compound and lost its leaves before the fruit had fairly stoned, yet this same

tree swelled its fruit buds and carried an excellent crop the following year; and we all know, or ought to know, that the roots of Plum stocks under favourable conditions commence action by Christmas time, and, of course, they cannot be active without supplying the plant with something. Your correspondent's reasoning on this head is a remnant of the old resting-and-drying theory, which has hindered the progress of horticulture for ages, and which I had fondly hoped was all but exploded.

Another remnant of it is clinging to "SINGLE-HANDED" when he says, "The idea that Vines when extending their shoots in spring need support, leads many to supply liquid manure to their borders when neither leaves nor roots are at work." Allow me to inform your correspondent that winter, after the cuts from pruning have healed, is a very good time to apply liquid manure to an inside border, and that it may be used stronger than is safe at any other time.

A Vine border should never be allowed to become dry, especially in autumn or winter, and nobody ought to know better than your correspondent that the manure is not poured into the Vines as if you were pouring soup into the stomach of a sleeping man. It is applied to the border, which, if well made, has the power of getting rid of surplus water and retaining the solids for future use.—WM. TAYLOR.

THE CLASSIFICATION OF CHRYSANTHEMUMS.

I QUITE agree with Mr. Moorman in his able and interesting remarks upon the Chrysanthemum (page 365) that a new classification of the Japanese varieties is necessary, but I would class them in three divisions as follows—Ribbon varieties, Twisted varieties, and Thread varieties.

The first or Ribbon varieties would comprise those of which the florets are reflexed and droop below the calyx—namely, Meg Merrilees, Baronne de Prailly, Fulgore, Gloire de Toulouse, Triomphe du Nord, Fulton, Elaine, Madame C. Audiguier, Arlequin, Rosa Bonheur, Triomphe du Chatelet, and others. The second or Twisted varieties would include Yellow Dragon, Grandiflora, Hero of Magdala, James Salter, Chang, &c. Thirdly, the Thread varieties would be such as Cossack, Gold Thread, and Madame Godelet. Then we have many of our best varieties with their florets erect or partly so—namely, Sarnia, Ethel, Fair Maid of Guernsey, Peter the Great, Daimio, Madame Lemoine, Jane Salter, Soliel Levant, Erecta Superba, Oracle, Diamond, M. Maney, La Nuit, Bouquet Nationale, and others. The beauty of the Japanese consists in their great diversity of colour and form, and these characteristics are making them worthy rivals of the incurved varieties. There are two varieties of Japanese, or rather now classed as such, which might with advantage be added to the large Anemone-flowered—namely, Duchess of Edinburgh, and a variety I bought under the name of Minnie Chate. The former has pure white guard florets with a pretty mauve centre, the latter has lilac guard florets with lilac centre.—W. ETHERINGTON, Swanscombe, Kent.



WE are informed by Mr. T. Jackson, the Honorary Secretary of the KINGSTON AND SURBITON CHRYSANTHEMUM SOCIETY, that the Exhibition for 1882 has been arranged to be held on November the 16th and 17th. The Society has also voted £30 of the balance of this year's funds towards a second challenge cup, to be competed for on similar conditions to their first, which is now limited to three competitors. The first challenge cup was contributed by the President and Vice-Presidents, and we think the executive have made a very wise provision for their future prosperity by offering a second cup.

—LIEUT.-COL. HILL writes to us as follows—"A gardener here tells me that he gathered ripe fruit of EARLY ASCOT PEACH six or seven years ago on a garden wall the first week in June. Poor Early Beatrice is nowhere. I should like to hear through the Journal if anyone else has done such a thing. He also tells me that a Weymouth gardener did the same. I intend seeing him

on the subject. The tree was on a south wall in a village in Dorset."

— WE have on several occasions referred to the new dwarf *TROPÆOLUM EMPRESS OF INDIA*, and a coloured plate sent us by Messrs. J. Carter & Co. represents a plant of this variety in very good condition. The compact habit of the variety, the dark-coloured foliage and the richly coloured flowers, are very fairly portrayed; and if the flowers are as well borne above the foliage the variety is unquestionably a valuable one, and will soon be a favourite for bedding purposes.

— WE are informed that, in accordance with the wishes of the late Mr. JOAD of Oakfield, Wimbledon, his herbarium and a large portion of the fine collection of hardy and cool house plants grown in the garden and houses there, are to be presented to the Royal Gardens, Kew. These additions to the national collections will undoubtedly be highly valued.

— THE locusts are committing such ravages in the ISLAND OF CYPRUS that a plan for the extirpation has recently been sanctioned by Lord Kimberley, which it is estimated will cost £23,000.

— CONSIDERABLE success, we are informed, has attended the experiments of M. Thiollière de l'Isle at Tain, in France, to check the RAVAGES OF *PHYLLOXERA* by planting his Vines in a soil specially prepared with sulphide of carbon.

— THE annual dinner of the BIRMINGHAM CHRYSANTHEMUM SOCIETY was held on the 14th inst., after which a combined business and sociable meeting took place. Several special prizes were liberally offered by gentlemen present, the highly satisfactory balance of £30 being announced as the result the past year. Great interest continues to be manifested in the progress of the Society.

— CASSELL'S ILLUSTRATED ALMANACK FOR 1882 is quite up to its usual high standard, being most profusely illustrated, and containing a great variety of useful and interesting matter.

— THE lessees of the Alexandra Palace announce a CHRISTMAS SHOW OF FRUITS, PLANTS, AND FLOWERS, to be held from December 24th to January 7th. Liberal prizes are offered in twelve classes, varying in value from £5 to 10s. In addition to classes for Grapes, Apples, Pears, and a general collection of fruits, provision is made for hardy berried plants, hardy ornamental shrubs, Rhododendrons in flower, Everlasting Flowers, Limes, Lemons, Citrons, Oranges, &c. For the year 1882 a liberal programme is announced, comprising a permanent exhibition of appliances used in horticulture, with numerous special and monthly exhibitions devoted to Hyacinths, hardy Azaleas, Clematises, pot Roses, Rhododendrons, Gladioli, Gourds, and Fruits. Particulars will be supplied by the Horticultural Director, Mr. J. Forsyth Johnson.

— MR. EDWARD LUCKHURST writes—"We have pleasant evidence of the genial influence of the MILD WINTER in the catkins of *Garrya elliptica*, which are now in full beauty and are very fine. It is planted here in the shrubbery borders and also among the climbing plants upon the house, answering well in both places; but the catkins are not freely produced till the plants have become well established in the soil and growing into large sightly specimens. *Lonicera odoratissima* is giving us plenty of its pretty little sweet-scented flowers, and the curious blossom of *Chimonanthus fragrans* is opening in unusual abundance, and is highly valued, a handful or two put in saucers filling a room of considerable size with rich perfume. Russian Violets, too, are almost as plentiful out of doors as under glass. Globe Artichokes in December are so great a rarity as to be worthy of notice. The remarkable mildness of the weather has caused several plants to put

forth flower stems—not mere abortive growth, but stout vigorous stems worthy of the finest summer weather, crowned, too, with such fine 'globes,' that I was able to cut a dish for table to-day (December 17th). Nor is this a solitary instance, for I have just been told of a similar case in the garden of J. W. Larking, Esq., at Lee."

— A CORRESPONDENT in the south of Perthshire sends the following respecting *TROPÆOLUM SPECIOSUM*—"So far from any difficulty being experienced in inducing this climber to grow here, it thrives so luxuriantly that precaution would rather appear necessary to prevent its becoming a nuisance. If planted near a cottage it soon bears a profusion of beautiful flowers, and it would seem advisable to confine the roots in boxes or by insertion of stones or slates to prevent detriment to other plants near it. This autumn I saw a case in point. It had been employed with other climbers to cover the retaining wall of an extensive terrace. It had not only fulfilled its purpose, but the Roses and other contiguous plants were being enveloped in its masses. Beautiful as it is, no one could wish it to become master of the situation to such an extent. Another graceful and beautiful flower, *Dielytra spectabilis*, grows rampant in the same locality."

— A CORRESPONDENT informs us that "Mr. G. Harris, gardener to H. W. Tugwell, Esq., Crowe Hall, Bath, and previously foreman at Syon House, has been appointed successor to the late Mr. A. Ingram as gardener to the Duke of Northumberland at Alnwick Castle. Judging by the satisfaction Mr. Harris has given in his previous positions, and the energy he has displayed in his profession, he is likely to well maintain the credit of the establishment now under his management." Messrs. J. Veitch & Sons, Chelsea, inform us that Mr. E. George Yeatman has been appointed gardener to Mrs. Miles, West End House, West End, Kilburn, N.W.

— SEVERAL good examples of that beautiful bulbous plant *FREESIA REFRACTA ALBA* are now flowering in an intermediate house at Orsett Hall, Essex. Six or eight bulbs are grown in a 32-size pot, moderately light turfy loam being employed as soil with plenty of drainage, as water is required rather freely during the growth of the plants. One specimen has a dozen scapes of white deliciously fragrant flowers, some quite expanded and others fast advancing. Mr. R. Castle, the gardener, finds that a moderate degree of heat suits the plant better than a cool house, and a light position is very important to obtain it in the best condition. The flowers are particularly valuable for cutting owing to their pleasant fragrance, which is somewhat suggestive of a Primrose perfume. This *Freesia* undoubtedly deserves to be better known than is the case at present. The woodcut on page 171 of the last volume of this Journal well represents the scape and flowers.

— FRAGRANT flowers are general favourites, and any improvement upon those we already possess must be welcome to all. This Mr. H. Cannell has unquestionably provided in the new *HELIOTROPE WHITE LADY*, which was shown in excellent condition at Kensington last week and awarded a first-class certificate. The chief characteristics distinguishing it from other varieties of the well-known plant are the great size of the corymbs, the large individual flowers which are quite white, and the fragrance is powerful even for *Heliotrope*. The habit, too, is compact, and the plant appears to be sturdy and floriferous in no mean degree.

— AMONGST the abundance of seasonable fruits in Covent Garden Market at the present time some examples of the *APPLE-FRUITED GRANADILLA*, or *SWEET CALABASH*, are especially notable. They are the fruits of *Passiflora maliformis*, a native of the West Indies, and are very distinct in form from the

common *Granadilla* (*Passiflora quadrangularis*), approaching *P. edulis* in form, but differing considerably in colour. They are indeed suggestive of the fruits of the Egg Plant, being ovate in form, pointed at the apex, 2 or 3 inches in its longer diameter, and when ripe is of a dull dark yellow colour. The rind of the fruit is comparatively thick and hard, but the internal substance is a yellow gelatinous pulp possessing a rather agreeable flavour.

— A DAILY paper remarks that "the birds are becoming bewildered by the mildness of the season. A gardener at Hampton in Arden discovered a day or two ago a sparrow sitting upon four eggs in her nest."

— A CORRESPONDENT sends the following note respecting FERN DENE, GATESHEAD, the seat of Alderman Newall—"In the numerous glass structures, which are under the superintendence of Mr. Milner, the following Orchids are blooming well—*Sophranites grandiflora*, eighteen blooms; *Cælogyne cristata*, sixteen spikes; and *Dendrobium Wardleanum*, ten spikes. The extensive collection of Pitcher Plants were also throwing up well. The grand corridor, 60 feet long, was extremely gay with *Chrysanthemums*, the plants and flowers being remarkably fine."

— A NORTHERN correspondent observes that "CHRYSANTHEMUM SHOWS IN THE NORTH OF ENGLAND have never been customary, although horticulture in all its branches is so well represented at the spring and summer exhibitions. The Newcastle Society, however, inaugurated a Show at Low Fell, Gateshead, last week, and although the prizes were not large several good collections of cut blooms were staged. The flowers were, however, unnamed, a defect which will no doubt be remedied another year, and the Exhibition is confidently expected to improve."

— NOTWITHSTANDING the great size it attains, and its somewhat straggling habit, DAHLIA IMPERIALIS is aptly named, and might advantageously receive more attention than is at present generally accorded it. The flowers shown by Mr. Wheble of Bulmersh Court, at South Kensington last week, well indicated what fine results can be obtained with a little care. The plants from which these were gathered were said to be about over 8 feet in height, and were growing in a Peach house where they had produced their blooms in the greatest profusion. At Kew and some other establishments plants may also be seen in good condition, but as a rule the culture of this handsome Dahlia is greatly neglected. Certainly it is chiefly adapted for a large house, as then only can its beauty be seen to the best advantage, but for a conservatory its value cannot be over-estimated.

— THE schedule of the BIRMINGHAM SPRING SHOW SOCIETY announces that the Exhibition for 1882 will be held in the Town Hall on Wednesday and Thursday, April 19th and 20th. Prizes are offered in sixty-two classes, especial encouragement being given to exhibitors of Hyacinths, Tulips, Lilies of the Valley, *Spiræas*, *Dielytras*, *Deutzias*, *Azaleas*, *Cinerarias*, *Primulas*, *Cyclamens*, and other spring-flowering plants. Special prizes are also offered by Messrs. J. B. Thomson, Hans Niemand, Bank & Hughes, Morley, Tonks, Jenkins, Spinks, and Redfern. Every provision has been made to ensure a good show, and it is to be hoped that the financial results will be more satisfactory than last year.

— A COMMITTEE has been formed with the object of providing prizes for a GRAND NATIONAL DAHLIA SHOW to be held at the Crystal Palace, Sydenham, in September, 1882, and to this end the following prospectus has been issued—"Though the Dahlia is acknowledged to be the queen of autumn flowers, no

great show, such as were accustomed to see in former days, has taken place for several years, and as a consequence the warm-hearted zeal which used to be generally manifested in regard to the cultivation of this flower has in great measure died out. In order to revive this flagging interest it has appeared desirable to several of the admirers and growers of the Dahlia that a great exhibition open to the United Kingdom should be held in or near London next season (1882) in order to give the public an opportunity to see the many beautiful varieties of all classes which are now to be found in collections of Dahlias, whether cultivated for exhibition purposes or for garden decoration. The Directors of the Crystal Palace Company, it has been ascertained, will give a handsome sum in aid of the prize fund; but to enable the Committee to issue a really liberal schedule, such as will insure a truly great show, by inviting Dahlias of every class, and by holding out proper encouragement to all growers, both those with limited and those with extended opportunities, a considerable sum will have to be raised. The Committee therefore hope to have the hearty co-operation as well as the liberal support of all who are willing to aid them in their undertaking." Subscriptions have been promised by a number of the principal florists, and further contributions will be gladly received by Mr. George Smith, New Villa, Hedge Lane, Edmonton, the Hon. Secretary and Treasurer of the fund. If the Committee receive the generous support that may be confidently expected, no doubt a magnificent show will be produced.

AN AURICULA COLLOQUY.

THE scene is a certain grand exhibition in the north of England, at which were assembled from all parts of the kingdom those most interested in the various departments of horticulture. Here were the most famous Grape-growers, the best plantsmen, the ablest gardeners in the kingdom. There, too, were rosarians of renown, Dahlia growers who scoffed at the mania for single flowers which had recently been developed, the famous Gladioli grower of the south meeting formidable competitors in the north; and amidst all these various interests there was a little knot of lovers of the Auricula who, shut out of the battlefield by reason of the time of year, could only talk over the past and conjecture about the future. To this came he of the merry eye and ruddy cheek which did not belie the genial warmth within, whom I will designate as Hibernius. There, too, was the Jupiter, the Hercules, the Titan of Auricula growers, who, hailing from the Yorkshire wolds, we must call Eborensis. There, too, was he of the murky town, who has shown that no disadvantages can outweigh perseverance and determination to succeed: we must call him Cultrarius. There, too, was the knight of the rueful countenance, who, albeit he hailed from the sunny south, looked as if a whole colony of woolly aphids had settled on his face: him we must call Cantius. While from a county close by to where we met was one who had lately joined the brotherhood; and although his hair was grey, yet did Castriensis show all the zeal of a neophyte. The conversations are no imaginary ones like Landor's; but, although I cannot give the *ipsissima verba*, yet the sentiments were expressed pretty much as I have given them. A wide field was ranged over. Exhibitions, modes of culture, value of varieties were discussed, and with that degree of zeal which profane outsiders call "crackiness."

CAST.—Well, I think now I have at last completed my collection, and believe I have got nearly every variety worth having.

HIB.—Have you George Lightbody and Prince of Greens?

CAST.—Yes, all of the good sorts, and many of them in quantity; in fact I am going in for them. I don't see why these better sorts should be so dear as they are, and I mean to try if I cannot cheapen the market. I am going to grow them all in frames ["bravo!" from Hibernius]. I don't believe in these heated pits or houses for a plant like the Auricula, I am sure you must injure the constitution of the plant; and if I am told that I must do it if I want to exhibit in the south, then I say Bother the south; the north is good enough for me.

EBOR.—Well, we must all be glad to welcome a new claimant, and one who is evidently determined to succeed. I am inclined to think that he is right, too, about forcing Auriculas ["Hip, hip, hurrah!" from Hibernius]. I shall never again subject mine to the heat that they have had. I have, in order to get them in for the London shows, given them as much as 55°, but I shall never

give them more than 45° [at this Hibernius shook his head]. Why, there is our old friend Cultrarius had three hundred blooming plants last season, and he forced them so that he could only find thirty fit for showing, all the rest were sacrificed to this; in fact, I have written to say that it is very improbable that I shall exhibit in London again unless the date is altered, for we can hardly ever have our Auriculas in time for their show unless we force them, and that I do not intend to do again.

HIB.—I am delighted to hear that some of these new ideas about forcing, and pits, &c., are condemned on such high authority. I have always looked on Manchester as the capital of florists' flowers, and its dicta are always to be regarded with respect. I stand in very much doubt as to influence of London on the true taste for florists' flowers. When one sees size and number of pips looked upon with favour, and refinement a secondary matter, I cannot but fear; for an Auricula without refinement is like a fair woman without modesty. You see I am a bachelor, and am therefore allowed to express myself thus. But what says my friend of the rueful countenance—my poor woolly-aphis-consumed hero?

CANT.—Aha! rueful countenance by no means. I need to be especially jolly when I hear these sages of the Auricula world thus expressing themselves. What amount of scorn have I not been subjected to because I have advocated these very things; because I have said that to force Auriculas was a heresy that no real lover of the flower would for long tolerate; that it was impossible to fix a date for a show that would combine north and south; that the southern taste was not a good one; that it went in for "wallops" and "chaney" rather than for purity and refinement; that it gave a first-class certificate to that jaunty impostor Col. Champneys, who has not one good quality of an Auricula about him; and now to have all this confirmed by such high authority may well shake off all my ruefulness. I have heard nothing said about my own particular *bête* (not *noir*, but) *blanc*, woolly aphis, nor has anything been advanced as to the value of varieties.

EBOR.—As to woolly aphis, I don't mind it a bit; we all have it. There's old Cultrarius's plants are white with it. Eh! old friend, is it not so? [Yes.] And I fancy when Cantius thought his plants were killed by it that there must have been something else the matter. As to varieties, well, I am now raising such seedlings as I think will make me independent of named sorts, specially amongst green edges.

HIB.—I think I may say I have not got woolly aphis; but I hardly think a beast like that can be anything but injurious. It must live upon something, and if it extract the juices from the roots they must suffer. I am glad to hear about Ebor's seedlings. We do want some good green edges, as we have not one first-rate one. Col. Taylor is angular, Prince of Greens has a watery eye, Imperator is long in the legs and rarely first-rate, and so we might go on. If we could only get a George Lightbody green instead of grey! That would be something.

CULT.—Well, Ebor and I have had many a talk together about our seedlings. We talk and talk, we examine carefully, and I do think that between us we shall have something good to show by-and-by. I hear a friend who is raising seedlings has lost some very promising green edges.

CAST.—I don't pity him. If a man grows Auriculas in glazed pots he deserves it.

CANT.—Come, friend, that won't do. I have seen that collection, and I have no hesitation in saying that it is impossible to see a finer, more healthy one, than it is; and, to speak truth, these seedlings were not in pots, so that could not be the case. This conversation has been a very pleasant one, and before I go I should like to lift up my hands against the system that prevails in the south of putting stakes to the blooms. It is like using bearing reins. If a horse pokes his head people use them; but when they take it off down goes his head again. Now these poor things have been so forced and coddled that they can't do without them; take them away and the bloom falls down on the pot. So I say, Away with them. Let us have the rule of the older and better florists, that the stem should be stout and well able to support the trusses. "Hurrah!" "Yes!" "Certainly!" from all, in the midst of which the party broke up and the colloquy came to an end.—D., Deal.

LEEK.—At page 533 the following occurs—"To prepare a large number of plants in order to secure extra fine crops, we advise those who are anxious to excel to make a mild hotbed and cover it with a glazed frame about the middle of April." April should have been February, as no doubt attentive readers would understand; but

others might make a mistake, being misled, and we therefore hasten to make this correction.—A. H. H.

TROPÆOLUM SPECIOSUM.

I OBSERVE much writing in connection with this plant, so very common in some parts of my country, and, although I make no pretensions to a knowledge of horticulture, I beg to offer you some of my observations regarding it. Some twenty years ago I first saw this plant (not in flower), in a small pot in the hands of a gardener, who explained its beauty and rarity, and, of course, price; but not for five years after—some fifteen years ago—I saw it in all its beauty and luxuriance. At that time I took a four-days trip north, by Loch Tay and Loch Earn. Having arrived at Aberfeldy by rail I spent a morning among the grand and lovely "Birks o' Aberfeldy," then getting the forenoon coach started for Killin. This coach runs through Kenmore, a small village in which the principal entrance to Taymouth Castle is situated. It is an old-fashioned village, very small, and can be seen at one view. One side is crescent-shaped and the other angular, the houses all one storey high except the little inn. As we neared the village (the coach road runs through it), the place looked *en fête*. All the windows and doors were festooned with bright scarlet ribbons as we thought, the rustic doorway of the inn was in a blaze of scarlet colour. Still all was quiet, almost no one going about. What could all this be? No sooner did we draw up to the inn door for a change of horses than I jumped down and examined what I then saw to be a very beautiful creeper twined round every support it could get hold of. Neither landlord, waiter, nor anyone about could tell me the name of it, nor was there time to beg or steal a root. Well, steal! it was growing wild. As we drove off and looked back we concluded that no art however high could have decorated that or any other place as that simple plant had done.

Driving along the margin of Loch Tay we at length reached Killin, one of the loveliest spots on earth. This small village consists of an hotel and about half a dozen thatched cottages as well as three or four new villas. On nearing it the first thing that caught my eye was the north end of the hotel ablaze with the same plant. Some trouble had been taken here. A large number of strings had been fastened to the eave of the house, two storeys high, and then pinned in regular order to the ground, and around each string twined a plant about 10 feet high at that time. The flowers of course all turned to the light, looking northward (the strings being 6 or 8 inches from the wall), and in such profusion that the leaves could hardly be seen. I did not attempt to get a root here. Next morning in walking round I saw the same plant twined round some long rods in front of one of the new villas, and, observing a gentleman working in his garden, went in and asked him the name of plant, when he told me it was *Tropæolum speciosum*, quite common, he said, in this part of the country.

That forenoon I was taken to an old garden about a mile off, on the banks of Loch Tay, which had belonged to the late chief of the McNabs, and for many years was the property of that family. There I saw a Vine in one great house—such a Vine as I had never seen. An English gentleman who was with me said it surpassed in size the celebrated Vine at Hampton Court. Another thing I saw in this old garden which may interest your readers was a Gooseberry plant, a single stalk trained up the corner of an outhouse and running along under the eaves of several houses (used for potting, &c.) for at least 18 or 20 yards, and at each joint hung a large berry, putting me in mind of some of those Dutch fringes I have seen on bed curtains. I had never seen anything like it, and could not believe it was one plant till I had traced it from root to point of branch. On going round this garden we came upon a man toiling with fork and spade at the side of a wall digging out the *T. speciosum*. He said it was a "wretched weed," and he could not get rest for it. It had gone under the wall and had come up on the other side as well. He had half a wheelbarrow load of its roots on the gravel walk ready to be thrown out. Thus is this beautiful plant prized at Killin.

The same afternoon we drove down Wild Glen Ogle and arrived at the hotel at the head of Loch Earn. There I found the same plant growing in great profusion in the garden of the hotel and also trained up the sides of the house. The landlord kindly gave me a handful of roots. Leaving this comfortable house we reached St. Fillan's Hotel at the foot of Loch Earn, another of the lovely and grand spots on earth unfortunately little known to tourists, being off the beaten track of railways. There I found this beautiful plant growing close to some small thatched cottages, and just under the eaves of the houses; those plants were not only in full flower but also abundantly loaded with purple berries

quite ripe, a lot of which I secured as well as more roots. The seed of the berries though quite ripe did not grow with me, and, having no botanical box, the roots were all shrivelled when I reached Glasgow; still, one or two of them grew the following spring, but did not—could not—flower in such a sulphurous atmosphere. How some of our gardeners would rejoice to see those plants, as I have seen them, in all their luxuriance—not a tender thing in a pot or greenhouse, but by the roadside, where, if crushed by the foot or nearly dug up, will spring again with renewed vigour.

Now the sequel of my observations is: You need not care a fig

what sort of soil the plant is put in, and it seems to me to grow like the common wild *Convolvulus* once rooted and established; but I noticed that in all places it was most luxuriant close to a wall. At Kenmore by the rustic porch of the inn it was growing up through the hard beaten ground. At Killin it was growing through the gravel spread round the hotel, many times relaid, no doubt, and beaten down; and at St. Fillan's, in the little plots before the cottages, where it was covered with berries, plots which I daresay never had a spade put into the ground. The roots are not unlike those of the wild *Convolvulus* and will grow when allowed, inserting themselves between the stones of the wall. If it does



Fig. 89.—*BEGONIA KNOWSLEYANA*.

not grow in England, where almost everything else grows better than in Scotland, it must be the temperature, not the soil. I never found the roots at any great depth, and they must be frozen hard in winter, yet they spring again each year with renewed strength. I have seen it growing equally well with any aspect, but I should prefer to give it a southern one, as the plants I saw bearing fruit were exposed to the south. I trust this paper though prosy may be interesting to the readers of the Journal.—JAMES HUIE.

MILD WEATHER AND THE LARVÆ OF INSECTS.—It will be interesting to note the results of the past unusually mild November

upon the subterranean-feeding larvæ. Probably the growth of some or most of these will be accelerated, to the injury of the roots, &c., they attack, but they may not be more likely to survive the winter should frosts set in hereafter.—J. R. S. C.

BEGONIA KNOWSLEYANA.

THIS is not a new plant, but till within the last few weeks I have never had a name for it, and as not many people care to grow a plant without a name it has not come into cultivation so much as it deserves.

I first became acquainted with this *Begonia* at Knowsley, the

scat of the Earl of Derby, some twenty years ago, and it has been one of my companions ever since; but I must own I have only discovered its merits as a decorative plant for winter within the last two or three years. It has always been treated as a plant that was useful for affording flowers during winter when we could not obtain sufficient of others, or to afford a little variety when there was apt to be too much sameness; but it was never thought of great value, and its total loss a few years ago would have occasioned little regret. Its great merit, however, is its adaptability for small specimen plants in 6-inch pots, where they grow from 15 to 18 inches through and a foot high, producing flowers at every tip and from most of the axils. The flowers are nearly white; they have just a tinge of pink in places, which gives them when growing the appearance of being bluish white throughout. They are produced in abundance all through the year, but they are most useful in autumn and winter, and it is for these seasons that they are grown and recommended. The leaf is smaller and the habit better than *B. insignis*, a beautiful old pink variety which everybody should grow, but which I believe is difficult to obtain true now, there being spurious forms of it in cultivation. I have often observed seedlings of *B. Knowsleyana* growing where plants have stood in the previous year; and although I am not sure that I have grown any of these seedlings to flower them, yet they are always in appearance so much like the parent that there can be no doubt it comes true from seed. I am of opinion that it is a distinct species imported by one of the collectors of a former Earl of Derby, who used to collect both plants and animals, more especially the latter, in large numbers. Knowsley at one time was celebrated for its menagerie, but the only remnant of it at the time I speak of was an aviary. I often heard the labouring men speak of a botanist or collector who used to be allowed to attend to some of his own pet plants in the gardens. I forget his name, but it was a well-known one. Was it Nuttall? Mr. Barron of Chiswick took some cuttings of this *Begonia* back with him when visiting Knowsley, and I have little doubt but that it found its way from Chiswick to Kew, where I am glad to see it has been thought worthy of a name.

Its culture is very simple. Cuttings are struck in March or the beginning of April, potted into 6-inch pots in such soil as would suit *Pelargoniums* well; they are kept in what may be called cool stove temperature—i.e., with a minimum of about 55°, and when the pots are filled with roots liquid manure is occasionally supplied, or, what I consider better, they have a teaspoonful of Standen's manure placed on the surface of the soil. This once repeated, if care is taken not to wash it over the sides of the pot when watering, is sufficient to carry them through the winter.—WILLIAM TAYLOR.

SCRAPS ABOUT FRUIT.

VIRGIN WINTER APPLE.—I shall feel greatly obliged if Mr. T. C. Antrobus will kindly tell me where the above variety can be obtained true to name, either trees or grafting scions.—ROBERT WARNER, *Broomfield, near Chelmsford, Essex.*

SECKLE PEAR.—Where did "WILTSHIRE RECTOR" obtain the sample of this Pear which was so "very small and of a vulgar sweet taste?" I very confidently venture to predict that not many of your readers will be found to agree with him. In the first place, it is not very small under good cultivation. I have seen and tasted fruit of it this season in Sussex quite as large as Louise Bonne of Jersey, and of most delicious flavour. But then, perhaps, it is the very exceptional aromatic richness for which it is so famous that offends the delicate palate of "WILTSHIRE RECTOR." If Seckle is to be condemned on the score of size, what are we to say about Winter Nelis, Comte de Lamy, Zéphirin Grégoire, or Dana's Hovey? all of them in my opinion indispensable sorts, and all having small fruit. The crop of Seckle was this year a heavy one, so heavy that the unthinned fruit was doubtless small and probably of inferior flavour; but is the result of such practice to be used to assail the high character of a fruit of such world-wide repute?—E. L. O.

SELECT APPLES.—Recently I had the pleasure of examining in a nursery in Essex a number of Apple trees in full bearing. I append a list of the sorts I thought worthy of cultivation as standards or pyramids—Tower of Glammis, the most extraordinary fruit I ever saw. Two years since in Covent Garden Market 6d. each was the price of them. Winter Majetin is everything we could desire as a late fruit. Golden Russet, Norfolk Stone Pippin, Northern Greening, Cox's Orange Pippin, Wellington (Dumelow's Seedling), Lord Suffield, Hawthornden, Manks

Codlin, Stirling Castle, Nonpareil, Golden Winter Pearmain, Winter Pearmain, Blenheim Pippin, London Pippin, Boston Russet, Allen's Everlasting. King of the Pippins and Summer Pearmain, two early Apples, were past when I visited the nursery. Scotch Firs afford an ornamental as well as useful protection to fruit trees in exposed positions.—T. C. ANTROBUS.

RED CURRANTS.—This is one of the most prolific of all fruits. The Red Dutch is very good, but Raby Castle is much superior both in size of bunches and berries, and keeps much longer. We had it fit for tarts on bushes in the open throughout October without any covering other than ordinary fish nets. White Dutch is a good companion variety.—SOMERSET.

BERGAMOTTE ESPEREN PEAR.—I find this one of the best late Pears, coming into use when most other kinds are over, and with care may be kept until spring. All late Pears require to be kept cool and not over-dry, or the fruit is apt to shrivel, which spoils the juiciness and melting character of the fruit. It is a free and certain bearer, succeeding admirably on a west wall on the Pear stock, trained either horizontally or fan-fashion. It succeeds well on the Quince, but as a pyramid is not profitable, as the fruit in ordinary seasons does not attain to perfection; indeed it is only against a wall that it can be had fine in North Yorkshire.—G. ABBEY.

RIVERS' EARLY PROLIFIC PLUM.—There was an omission in my previous note about this Plum which I hasten to make good. The pyramidal trees are of an average height of 13 feet, and are 10 feet in diameter at the base. I may add for the benefit of those who are unacquainted with this Plum, that its name of Early Prolific is faithfully descriptive of its remarkable property of earliness and abundance. A really good Plum which is ripe in July must command the market, and is a sound investment for those who are planting for profit.—A KENTISH GROWER.

BLACK CURRANTS.—*Apropos* of planting for profit I may usefully call attention to the important fact, that in Kent Black Currants prove more profitable than any other fruit. The better the soil the stronger the growth, the finer the fruit, and the heavier the crop. You cannot give them too much manure, and, mark this! you cannot lose money by doing so. But do not disturb the roots of thoroughly established bushes. Surface-dressing is the best way to apply manure, and if you have plenty of sewage pour it about among them frequently, and you will have plenty of sturdy shoots from the ground, and a constant renewal of youth and vigour.—K. G.

THE BEST TWELVE PEARS.—Beurré Clairgeau invariably affords me some fruit, and usually bears a full crop. This year it was a heavy one, and the fruit was remarkable for its beauty of both form and colour; but it was so poor in flavour, and really good Pears were so abundant, that not a dish was used for dessert. Doyenné Boussoch, too, was very fine and plentiful, but it was only used for stewing. It bears such noble fruit that I always regret its invariable poverty of flavour. Were I to select a second best twelve for dessert, neither of these Pears would be included therein. I very confidently venture to assert that had "W. J. M." and his co-judges tasted Beurré Clairgeau and compared it with, say, Fondante d'Automne, they would not have come to a decision so erroneous and so misleading. I may add that the soil here is so largely impregnated with iron that the fruit of Beurré Clairgeau is always very highly coloured, and is so beautiful that I once took some of it to Dr. Hogg, who much admired its brilliant appearance, but made no remark about flavour, nor was I surprised, for what saith the "Fruit Manual?" "A handsome and showy Pear; ripe in November. Its appearance is its greatest recommendation."—SUSSEX.

GOLDFUSSIA ISOPHYLLA.

THIS plant is by no means so popular as it deserves to be, and for a late autumn and winter-flowering plant none could be more useful and ornamental. The colour of the flowers is indeed very pleasing, being of a pale lilac. Its uses are numerous, and for conservatory decoration, when a rather dry atmosphere is maintained, it is a great acquisition. In the case of Goldfussia, as in many other plants that belong to *Acanthaceae*, the individual flowers are of rather short duration; but fortunately they do not all expand at the same time, and if a little care is exercised to remove the decayed flowers the plants will keep in good condition

for a considerable time. When a constant succession of flowers is to be maintained Goldfussias do good service, and with a number of plants the flowering season may be prolonged for several weeks.

If cuttings are inserted about March in a little bottom heat they very readily form roots. As soon as struck they may be potted off singly into 60-size pots and kept in the stove till they are well established. When they have filled their pots with roots they should be shifted on into 48-pots, employing a rich compost. After they have commenced rooting in the new soil the tops should be pinched out to induce them to branch; one, or at the most two pinchings, will be quite sufficient. Good bushy plants can be grown in 48's, but if plants are required of a larger size another potting will be necessary. I grow my plants in a cold frame through the summer fully exposed to the sun, and in autumn they are removed to an intermediate house.

I find it the best plan to bring the plants on gradually into flower, for if they are forced into bloom they do not as a rule last so long. It is undoubtedly the best plan to strike young plants each year and grow them on as described above. I have on one or two occasions kept the plants a second year. After they have done flowering I cut them back and treat them like Pelargoniums, reducing the roots, and pot them in rich soil, after which they receive the same treatment as the spring-struck plants. As a rule plants grown the second year are not nearly so satisfactory as young plants.—W. K.

A WEEK IN BELGIUM.

[THE FOURTH DAY.]

HAVING referred to Antwerp with its antique features and quaint customs, glanced at the character of the horticultural exhibitions, also the domestic floriculture of the old city, and briefly described what may be termed the town and country nurseries of one of the oldest and most esteemed of Belgian horticulturists, I pass to a change of scene and spend the fourth day in

BRUSSELS.

What Edinburgh is to Glasgow, and Bath to Bristol, Brussels is to Antwerp. On the one hand we have business with all the attendant excitement and an apparent money-earning community; on the other we have luxury and ease represented, and what seems to be essentially a money-spending population. Antwerp is the great Belgium emporium of commerce. Brussels, the seat of much trade no doubt, is essentially a city of pleasure-seekers from many lands. Antwerp is flat and generally unpicturesque. Brussels occupies a position more or less undulated, and there are several standpoints from which beautiful views may be had of a beautiful city—all the more enjoyable because there is no smoke. It is in consequence of the practical smoklessness of Belgian coal that the cleanliness of the buildings is to be attributed. All the principal edifices are white and clean as if painted yesterday—a striking change from the dingy bricks of London. The trees, too, are as fresh as in the open fields; the park in the centre of Brussels being the rendezvous of thousands, who enjoy the shady walks, for shaded indeed they are, and the open air concerts; the boulevards, too, are extensive and enjoyable promenades.

When it is incumbent on the visitor to see as much as possible of the city in the least possible time, he cannot do better than engage a guide who has a horse and small open carriage behind him. There are numbers of them, and much may be seen in an hour or two—the palaces of the King, Comte de Flandre, Duc d'Arenberg, the ancient Hôtel de Ville, and the modern Palace of Justice—the latter approaching completion. The New Law Courts in London are unquestionably extensive, and many think them imposing, but they represent a conglomeration of pepper-boxes in comparison with the massive grandeur and rich architecture of the noble building in Brussels, on which something like three million pounds sterling will be expended before the work is finished.

If time permits for a suburban drive it will be enjoyed—say, for instance, about two miles in one direction to the Wiertz Museum for an inspection of the paintings, which for marvellous conception and dash in execution are, perhaps, unequalled as the work of one man. There are few visitors who do not experience a keener sense of the sublime and the ridiculous in this building than they have experienced before. In what way the latter is accomplished it would scarcely be fair to tell—all who have been will know, and those who go will find out, if they see all that is to be seen. The artist must have been intoxicated with his extraordinary imagination and his conspicuous talents. About the same distance in another direction is a terminus of a very different character—the Bois de la Cambre. This is a beautiful wood and park combined, and for boldness of treatment and the

diversified character of the scenery it is unique. Both these popular places of resort can be reached by tramcar from either of the railway stations. English visitors who have a day at disposal can spend it interestingly by a visit to Waterloo by coach, a distance of twelve miles; but having been to the historic field on a former occasion I turned in another direction—namely, Laeken; first, however, spending half an hour in the

BOTANIC GARDENS.

These are situated quite close to the Station du Nord, the station for Antwerp; and as the boulevard alongside of them, the north side, is much higher than the Gardens they show to great advantage, sloping as they do to the south, the glass structures occupying the higher ground, forming the northern boundary; in fact the gardens are so thoroughly overlooked that they can be and are enjoyed by thousands without entering them at all. The principal range of glass is very extensive, very old, and very ill adapted for the growth of plants. It is in the old orangery style, having a front of masonry with windows, but a roof of glass domed in the centre. It is more imposing from without than attractive within, still it contains many gigantic Palms; in fact, it is a forest of Palms, which are kept as healthy as the place and circumstances permit. A very large fernery is more attractive, as it is furnished with many fine and choice specimens in excellent condition. There are also long, low, span-roofed houses crowded with a varied botanical collection of plants, which are evidently well cared for and cultivated. Outside the grounds are rendered attractive by various kinds of bedding plants, Orange trees in tubs, and a garden of hardy plants. There appears to be little of everything, including carpet bedding, and there is something to meet the tastes of all. The Superintendent, M. Lubbers, is admitted to be one of the most accomplished gardeners in Belgium, and any of the British fraternity who visit him will find his ability equalled by his courtesy; but they will find the pleasure enhanced if they can speak the French or Flemish languages, for there is nothing much more awkward than the meeting of a Belgian and Englishman each ignorant of the other's tongue, and both smiling and bowing their best to render themselves agreeable. We now pass on to

LAEKEN.

There is a station at Laeken on the line to Ghent—in fact two stations, one for the Royal family and the palace visitors, and the other for the public; but it is as well to go by tramcar, the distance being only about two miles. Those who were acquainted with Laeken two or three years ago, and visit it again now, will be astonished at the great alterations and striking and costly improvements that have been made by His Majesty. The approach formerly was through a village the reverse of picturesque. The road was narrow and cramped by old cottages on one side and the dead park wall on the other. Now all is changed. The King purchased the property, pulled down the old tenements, and converted the site into a handsome park, which he has presented to the people of Laeken and Brussels. It is a right royal gift. Nor is this all. The park is only separated from the royal demesne by an open iron fence, so the palace grounds can be seen by the public, and since the improvements have been effected they are certainly worth seeing. The Royal Family have also a corresponding advantage, for an extensive and picturesque view of the public park is obtained from the palace; a prominent object of interest to all being the Leopold Memorial, an elaborate structure, somewhat in the style of the Albert Memorial in Hyde Park, erected in memory of Leopold I. This public park has been most skilfully designed and planted by M. Delabarrière, a student of M. Alphande in the parks of Paris. M. Delabarrière has also been engaged in remodelling a great portion of the royal pleasure grounds, and he has certainly accomplished his work in a masterly manner—created, in fact, quite a transformation. It is not surprising that the King, in recognition of work so well done, should desire to retain the services of one who has proved his competence, and in all probability both the public and the private park will remain under his superintendence. Boldness and freedom characterise the whole work, and Art and Nature have been so happily merged that it is impossible to tell where one ends and the other begins. Laeken is richly wooded, and abounds in glades and vistas that render the surroundings of the palace highly picturesque.

THE WINTER GARDEN.

From a gardening point of view this remarkable structure towers above all else at Laeken. It stands alone in all its majesty, and is quite unlike anything we have in England. It is circular, with two corridors or wings attached. The roof is a vast dome, resting on a wall of masonry 3 or 4 feet high and terminating in a lantern with moveable lights for ventilation.

The diameter of the house is nearly 200 feet, and the height to the top of the lantern 80 feet—a vast space to fill ornamentally, but it has been accomplished. The interior of the wall on which the roof rests is faced with rockwork and planted with Ferns, Begonias, and other suitable plants, by the side of which is a broad walk all round the house. About 20 feet from the side is a circle of thirty-six stone columns 20 feet high and 30 inches in diameter for supporting the roof. These massive columns and the architrave are rather obtrusive, but none of the structural parts of the edifice must be covered with plants; no climber even must touch the roof, in obedience to the law of the architect, otherwise Mr. Wills would without doubt have found means to partially cover this and the masonry, and have made the house, as a garden, even more ornamental than it is. Between the outer wall and the pillars a series of semicircular beds are being formed, and in each is being planted a single Palm—if I remember rightly, *Phoenix reclinata*—and handsome specimens they are. Hitherto they have been in tubs and other plants grouped round them, but they now demand more space, and their appearance will be much better when the work of planting is completed.

We now come to what may be termed the inner circle of the garden—the space enclosed by the pillars. This is simply divided into two large semicircular beds by a promenade some 20 feet wide of mosaic pavement. The beds are planted in a free irregular manner so as to resemble a tropical forest, and the idea is admirably carried out. Magnificent Palm trees and Tree Ferns tower aloft forming a grand canopy of foliage, the undergrowth comprising dwarf Ferns associated with ornamental-foliaged Begonias. The Begonias thus grown in all their native vigour are most striking. Such plants cannot be produced in pots, and the subdued light is precisely suited for bringing out the richness of their markings. These plants, 6 feet or more in diameter, with huge leaves in richest colour, show with great effect from the mass of luxuriant Ferns—*Aspleniums*, *Adiantums*, *Pterises*, &c., *P. argyrea* being especially striking, and the whole scene is as complete in its way as could be desired. To enumerate the Palms would be too great a task, and is not needful, but a few cannot be forgotten. *Sabal Blackburniana* from the Duke of Arberg's is magnificent, and one wonders how such specimens could be removed and placed in their positions, for the weight must amount to many tons. *Livistonia australis* and *Sabal palmata* are similarly grand. *Astrocaryum rostratum* with its prickly stems is the finest plant in the kingdom. *Corypha australis* has a stem 10 feet high and a head 20 feet in diameter. *Caryota Rumphiana* is of the same size. *Phoenixes* are numerous, *P. sylvestris* 20 feet high being deservedly valued, and the rare and valuable *Cocos australis* with its remarkable sharply hooked leaves commands attention, the specimen being valued at £500. *Kentias*, *Attaleas*, *Arengas*, *Braheas*, *Chamaerops*, *Latanias*, *Livistonias*, and, in fact, all the choicest and the best kinds that could be obtained, are included in the forest, and all are in the best of health. They are such as a king may be proud to own, and it is evident his skilful gardener M. Ingelrelst cherishes them. This is a meagre description of a remarkable structure, which alone is worth a journey from England to see, if the sea is not too rough and the visitor can speak French, as all cannot expect to be so fortunate as I was to meet His Majesty's English valet, Mr. Murray, whose presence rendered my hour at Laeken peculiarly agreeable.

THE ORANGERY.

Connected with the winter garden is the orangery, at one end of which is the King's private theatre. This orangery is a huge building 250 feet long and 25 feet wide. The sides are glazed between buttresses of masonry, and the roof is ceiled; still it appears to answer the purpose of preserving the Orange trees and Camellias in the winter, these being placed in the open air during the summer. A correspondent "VINDEK," referred on page 383 to the light soil in which Belgian Camellias are potted as insufficient to maintain them in good health. I do not know what he would have said had he seen the Laeken specimens in tubs, and not very large tubs either, the foliage being of the richest character and the buds in thousands—even thousands on one specimen, for some of the plants, or trees, are apparently 30 feet high, perfectly furnished from the tubs upwards, the specimens being cone-shaped, or rather split-cone shaped, for they are flat at the back for arranging against the walls of the orangery, every portion of which between the windows they cover from the floor to the ceiling. In August they were in the open air arranged on the north side of a close belt of lofty trees, and consequently quite shaded from the sun during the greater part of the day. Shade is evidently considered essential for Camellias in Belgium, and is provided by cultivators in private gardens and nurseries. Great judgment is requisite in watering such specimens as these, and

they are certainly well attended to, or they would not be in the excellent condition they are. The soil in the tubs is black and sandy, resembling decayed leaves or manure mixed with sand, and clear liquid manure is given occasionally.

Fine as the Camellias are, the Orange trees are still more striking. As arranged in rows outside the house they formed quite a grove. Many of them are historic specimens and are greatly and worthily prized. There appeared to be about two hundred of them in tubs about 4 feet high and 5 or 6 feet square. The stems of many of them appear to be 18 or more inches in circumference, and the heads, which are globular and very handsome, range from 8 to 10 or even 12 feet in diameter. Several of these trees are, I believe, considerably over a hundred years old, yet, generally speaking, they are in excellent health, the foliage being clean and glossy and the fruits numerous. In the spring Orange blossom at Laeken must be about as plentiful as Apple blossom is in an ordinary English garden, and the perfume in the orangery must be overpowering. A few of the trees have lost their vigour and are being renovated. This is done by reducing their heads, cutting the branches "hard in;" buds and fresh growths soon follow, and new and fresh heads are formed. The specimens are unsightly for a time, but not for long, and eventually there is a satisfactory compensation in the renovated trees. This is the best mode, too, of treating old Camellias that need renovation—cut them boldly down, and they will repay by strong and healthy growths if the plants are otherwise rightly treated, as I have often seen in Belgium, and seen also and practised in England. The Orange trees in question are worthy of Laeken, of the royal possessor of them, and of Belgium—more need not be said.

From the Winter Garden we enter a semicircular conservatory adjoining the theatre, and from thence a long glass-roofed corridor that conducts to the palace. This is a great work, and mostly below ground, except, of course, the roof. On the sides are rockwork, and the walls above are wired, but hitherto they have failed to cover them. Even the *Ficus repens* scarcely makes any progress, and *Selaginellas* assume an abnormal character. There is a great desire to cover the walls, and in all probability a collection of Ivies would be as likely to succeed as anything, while many of the varieties are unquestionably beautiful—to wit, Sir Henry Peck's wall of them at Wimbledon House.

There is thus much of interest at Laeken—much that is good, even grand; but I must record a great want. The winter garden, as I have said, stands alone. There are no preparing houses for the supply of plants that would complete its adornment. There is a venerable range of lean-to houses of little use for plant culture, and a few rough frames. Ranges of span-roofed houses or pits appear to English eyes simple necessities under the circumstances, and perhaps in due time they will be provided. Until then it is an absolute impossibility for any gardener to furnish the huge building in the most attractive manner; but with such aids and competent assistance, a spectacle of floral grandeur might be effected such as would be difficult to equal in any country.

I shall not soon forget Laeken, nor the courtesy and kindness of M.M. Ingelrelst and Lebarrière, Mr. Murray, and my good friend and able interpreter Mr. Charles Van Geert, jun., who was my efficient guide and genial fellow traveller during the fourth day of my week in Belgium.—J. WRIGHT.

PEARS FOR WALLS.

I HAVE carefully read "JOHN BULL'S" latest under the above heading, and, anxious to satisfy him as far as is in my power, I again revert to the subject. Your correspondent thinks that we may be shocked to know that he root-prunes with an axe. Whether shocked or not, we certainly think that had the tree he speaks of been properly planted, and the roots properly cared for afterwards while the tree was young, the work would not have been greater, and the practice would have been more worthy of being held up for imitation.

The only thing "JOHN BULL" asks me to answer is—"If the practice of root-pruning and lifting is so wonderfully profitable, how is it that fruit-farmers who pay £5 an acre for their land do not indulge in it? And on the border question, will he say why a Pear tree against a wall should require an expensively made border when it will grow freely without it in an open field or garden?" I have already answered the latter question in the following words—"I did not say that Pear trees would not grow without having borders made for them. But I said, and say still, that first-rate results need not be looked for from trees trained as advocated without good borders. That they will grow we are all aware, but we want something more than growth. We want fruit, and not only fruit, but good fruit, and we have yet to learn

that good Pears can be produced all over these islands from trees the roots of which are allowed to run in cold clay or cankered gravel. Here and there, especially in favoured spots, conditions favourable enough may be found, but few are so favoured." This reply your correspondent does not seem to have noticed.

My lot never having been to work in orchards I will not presume to understand their usual management; but if root-pruning and root-lifting are unknown among fruit-farmers I do not hesitate to say that, even on the best of soils and in the best of climates, fruit-farming is capable of improvement, for care of roots is of more importance than care of branches. But, more important still, I will venture to say from my own experience that it is only favourable soils that command £5 an acre, and that when such land at that price affords profit it must be good. Orchards, generally speaking, are confined to certain districts known to be favourable, and in such districts great results are obtained with next to no skill. Gardens, on the other hand, are placed anywhere. The soil may be quite unfit for further culture and the climate bad, but the gardener is expected to furnish fruit and vegetables from it. Even the best skill may fail under such circumstances if the example of the plant-and-let-grow plan as advocated is followed. Perhaps your correspondent has never had serious difficulties to contend with, and as yet he has said nothing to justify us in thinking that he merely plants his trees, and, beyond severing a tap root occasionally, attends to the tops, and reaps first-rate results. His book is not yet emptied, however, and it is possible he may have the best part of it in store for us.

In our native county there is a small district almost wholly occupied by orchards, the people having found that all kinds of fruit thrive with no attention. In no other district do Pears attain the size or quality of the Pears in that spot under natural conditions. On such a soil (it is heavy gritty loam from decayed trap to an unknown depth) no preparation of borders would be necessary, and such trees as advocated by "JOHN BULL" would be satisfactory to everyone concerned. In the garden where the first three years of our gardening career were spent the soil was of a very different kind. A better stocked garden as far as fruit trees went we never saw, and the old gardener was one after "JOHN BULL'S" own heart. Just such trees as he admires covered the walls, but great numbers were prone to produce wood rather than fruit. In good seasons immense crops were produced, but between their produce and that of the orchard district the difference was great. They were not over half the size and the quality was not equal, neither did they fruit year by year with the same regularity. The finer kinds were scabbed and often cracked and inferior. The roots of the former were in healthy material, ours in poor sand.

Part of the wall was much swayed, and that portion was covered with young trees not nearly full grown. It was determined to rebuild the wall, and to accomplish this the trees had to be lifted. This was entrusted to me. Strict orders were given us to lift the trees with balls; but the roots were clean and straight, and we could not get an ounce of earth with them. We transplanted them temporarily against another wall. All lived, and when one year after they were transplanted against the new wall the fibreless roots had become magnificent wigs; but the growth of the branches was effectually checked. The following year the newly planted trees produced more and finer fruit than I believe was ever produced from an equal space in that garden before. On revisiting the garden some years afterwards I was assured that the trees referred to were the most satisfactory on the place. That fine trees bearing fine crops of first-class fruit could be produced by making expensive borders I quite admit, and such was the practice in that country fifty years ago. Without the borders such results could not be obtained. If the tree must be produced, then, also, so must the borders. Now we think the borders quite unnecessary, for by careful lifting and root-pruning the best results may be produced on even bad subsoils; but lifting and root-pruning in inferior soils means smaller trees, which will cover the walls equally well if planted closer: and medium trees would be equal at least, at very much less labour and much less waiting, than larger trees necessitating the making of wide deep borders.

Axe-pruning we know little about, and should hesitate to sever large down-going roots for fear that decay might be induced, which might creep up and kill the trees. Large trees we have assisted to improve by lifting first one half of the roots one year and the other the year following; but again we say that the labour required in such cases is much greater than is expended in keeping the roots of properly trained medium trees out of the subsoil. Still, were we to find ourselves in charge of trees barren or producing inferior fruit by reason of the roots going into bad or cold soil we should certainly lift the roots; and if such trees

turned out bad sorts, still we would not destroy them if they were healthy, but cut back every branch and crown-graft them with sorts known to be good and suitable for the locality. Many bad sorts have we thus replaced.

We have helped to cultivate trees successfully when others let alone would not live even. Not many years ago we had a lesson on a soil very similar to that of the London basin. These trees grew well with no trouble, and produced excellent results. On similar soil the results were exactly opposite. This may look strange until we add that the garden is five hundred miles further north. The matter of climate alone made the difference. There we helped to plant a number of trees in prepared soil. So long as the roots kept in the prepared soil the fruit was very fine and never failed to ripen. When the roots reached the cold under-soil the effect was exactly as if the climate had changed much for the worse. What would "JOHN BULL" do in such a case? The gardener in charge lifted all the roots and thus restored the trees to their former fertility, but the operation checked the growth to begin with, and the heavy crops afterwards. Part of the more easily managed—that is, smaller—trees on the walls were similarly treated with like results. Others there are "splendid and splendidly trained," which bear well in alternate years, but the fruit is not good in ordinary seasons; and in bad years—and they have occurred rather too frequently in that locality lately—the fruit is very inferior and many kinds fail to ripen fruit at all.

I hope I have now made clear why I prefer small to large trees, and why I advise others to "seriously consider" what they are doing. I said before that much more labour was necessary to produce a given amount of fruit from a given space of wall, and though the terms I used were exaggerated (I confess that); my experience tells me that that is so. On a healthy soil and in a good climate perhaps I might be inclined to raise such monuments to my name as "JOHN BULL" admires, but hitherto I have not been favoured with the necessary conditions. In what latitude does your correspondent practise? He might give us a hint, for surely he will go on drawing upon his "book," now that he has begun. Although I have used words I should not have used, for which my apologies are due to "JOHN BULL," his object, I am sure, is to benefit his readers as mine is, and no one will read what he has to say with greater pleasure than will—A. H. H.

PLANT-COLLECTING IN TROPICAL COUNTRIES.

AS, doubtless, many of your readers who fully appreciate the many beautiful plants annually sent out by the leading nursery-men have but faint ideas of the dangers incurred in collecting them, I give the following brief indication of the course pursued by men so engaged, the substance of which I have gathered from conversation with many travellers in the tropics.

Having received his instructions as to the chief objects of his search, and the districts where they are most likely to be found, the collector proceeds to the port nearest to his destination and thence to the most convenient town as a basis for his operations. After a few days he is well on the road, and seeks to engage some assistance in the shape of a boy, this boy being often nearly as old as himself. After the promise of a few dollars the boy is engaged, or as many assistants or boys as the collector requires, and start, each man carrying his own knapsack. In a short time they are all busily engaged, provided everything is favourable, tearing the plants from the trees or rocks, and making some preparation to keep them alive till they have collected sufficient to form one consignment to be taken down to the seaport and packed ready for shipment. All this may appear a charming life to those uninitiated, and so it is; but this, of course, is the brightest part of it. The drawbacks are tenfold compared with the pleasures. The climate is perhaps the most dangerous of all to any European, and what a collector suffers from most is fever. This is brought on to a very great extent by exposure. It often occurs that when a collector is exploring a wild out-of-the-way district that he is too far away to go even to the nearest house or hut to sleep, consequently he has to construct a hut himself, and that it with leaves to keep out the wet. It is when a collector is smitten with fever that he finds himself in an awkward position. He then has to doctor himself, his chief medicine in case of fever being sulphate of quinine. I was informed by a collector not long since that on more than one occasion he would willingly have given his twelve months' salary to have been free from fever and back home again. Generally speaking, they live very hard, too, when they are travelling; their staple food is boiled rice, with any other delicacies they are fortunate enough to obtain. Wild animals and poisonous reptiles are frequently met with, to say nothing of the annoyance of monkeys, croaking frogs, ants, and other things

too numerous to mention. Nor do their troubles end here, for in many parts the natives are very untrustworthy, and much care and constant watchfulness are required to contend with them. These are only a few of the troubles and dangers to which plant-collectors are exposed; but sufficient has been said to enable uninitiated readers to perceive that the beautiful plants which adorn their stoves have not been obtained without much danger, discomfort, and expense.—W. R.



KITCHEN GARDEN.

ADVANTAGE should be taken of weather unfavourable for outdoor operations to examine the roots, especially Potatoes, which owing to the mildness of the autumn are sprouting fast. This more particularly applies to the early kinds, which of those intended for planting should be placed thinly on shelves or other suitable places so as to retard the sprouting as much as possible and to render the growth stout. It will not do to remove the first growths of the early kidney varieties, as they do not start freely into second growth. They should be kept as cool as possible, merely excluding frost. The later kinds of Potatoes are not keeping very well, except Champions, which have scarcely any diseased, and these should be sorted, removing any diseased tubers. Onions are keeping fairly well, but all bad bulbs must be removed, whilst those which have been bunched or strung should be placed in a dry cool shed where they will obtain plenty of air to insure their keeping sound to a late period in spring.

During weather unfavourable for ground operations the rubbish heap must have attention, separating the crude material from that in an advanced stage of decomposition. The last should be placed in readiness for employment in enriching the ground. The crude material may have a little lime and salt mixed with it, as it is thrown into a heap, which will hasten decomposition and help to destroy vermin. Any dressings of trees or prunings should be burned, the ashes being valuable as top-dressing for fruit-tree borders, and are peculiarly valuable for ground intended to be cropped with roots, such as Onions and Carrots.

Cauliflowers and autumn or winter Broccoli should be looked over frequently, cutting all heads that are of suitable size, and keeping them in a cool place safe from frost. Any not large enough to be cut, but having heads about the size of a teacup, may be lifted and planted in pits or frames protected from frost. Any that have heads neither large enough for cutting nor lifting should have the outer leaves broken over them. Hoe between autumn-sown crops of Onions, Cabbage, Spinach, and Lettuces to destroy weeds, and remove decayed foliage.

Forcing Department.—Continue to prepare well-fermented material, such as dung and leaves, in the proportion of one of stable litter to two or three of leaves, to afford material for lining beds containing Potatoes, should severe weather set in, and for making beds for successional plantings of Potatoes, also for Cauliflowers, Carrots, Lettuce, and Radishes as may be necessary to the supply of the establishment. See that good successional supplies of Asparagus, Seakale, and Rhubarb roots are introduced. French Beans will require sowing at intervals, earthing-up those plants advanced in growth, and supplying liquid manure. Cauliflowers under handlights or in pits or frames must have air on all favourable occasions, similar remarks applying to Lettuces and Parsley, providing sufficient covering as protection in severe weather.

HARDY FRUIT GARDEN.

Apples and Pears, whether grown as espaliers, bushes, or pyramids, may now be pruned to advantage, staking and tying where required. To make handsome and fruitful trees pyramids and bushes should be moderately well thinned, as where hard summer pruning is practised the wood is likely to become crowded so much as to seriously affect

the prospect of a crop of fruit; but wherever the condition of fruit trees is unsatisfactory the roots must be carefully examined, when it will generally be found that remedial measures may be adopted with success. Excessive luxuriance is a frequent cause of fruit trees not bearing, and can generally be remedied by judicious root-pruning, which should, however, be carefully performed, using a sharp instrument for severing the roots, as bruised roots die back considerably and cause fungus in the soil. In cases of weakness or exhaustion the surface soil must be carefully removed to expose a considerable portion of the roots, removing the soil from amongst them carefully, also any dead or decayed portions of roots. Work in good turfy loam, to which has been added a fourth of well-decomposed manure; make it firm and cover the roots with 3 or 4 inches depth of the same compost, and if the soil is dry tread it down moderately firm and mulch with light manure.

When the weather is open planting fruit trees may be brought to a close as soon as possible, and as soon as the trees are planted they should be secured to stakes, or, if against walls, lightly tied or tacked to the wall to prevent injury by wind, deferring securing the shoots in their proper positions as well as shortening the growths until spring. Mulch well over the roots.

FRUIT HOUSES.

Peaches and Nectarines.—Owing to the unusually mild weather very little fire heat has been required in the house, to which it is usually applied early this month. Heat has only been needed on wet days to promote a circulation of air, which is always desirable, particularly in the early stages of growth. Continue the temperature at 50° to 55° by day, turning on the heat in the morning to effect this, allowing a rise of 10° from sun heat, accompanied with a free circulation of air, the night temperature being maintained at 45° to 50°, which will be quite sufficient for bringing the trees into flower without unduly exciting them. Syringe the paths and borders in the morning and early afternoon, and the trees also if the blossoms are not more than half expanded. If upon examination the borders are found dry give a thorough soaking with water at 80°. The house to which fire heat is to be applied early in the year must be closed, damping the trees in the morning and afternoon, ventilating when the temperature reaches 50°, and employ fire heat at night if necessary to exclude frost. Supply the inside borders with water at 80° repeatedly until they are thoroughly moistened; but if the lights have been off water will not be required for some time to come. The outside border must be protected with a good layer of leaves and litter to prevent their being blown about. Complete cleansing the trees in succession and late houses, also cleansing and painting houses that require it. Watering must be attended to in succession and late houses, as, should there be any deficiency of moisture at the roots of the trees now, it is likely the buds will be cast later on. When the weather is mild the ventilators must be open constantly, closing only when there is frost.

FLOWER GARDEN.

Beds of Hyacinths and Tulips should be covered with a mulching of cocoa-nut fibre refuse 2 or 3 inches thick to protect the bulbs from severe weather, similar attention being given to other plants that are likely to be injured. Rose borders should be well mulched with litter. Standard Roses must be protected if necessary with hay or other light material wrapped about the head, and make secure to stakes. Teas must not only be protected with soft dry material, but be covered with mats as a further protection, the ground being well mulched previously. Cannas left in the ground should be well mulched with straw or bracken; and all plants of doubtful hardiness, such as *Chamaerops humilis* and *Fortunei*, *Aralia Sieboldi*, and Bamboos, must be protected with mats. Delphiniums and Pyrethrums often have their young shoots eaten beneath the surface by slugs, and to avoid this the soil may be taken out around the crowns, a dusting of quicklime being given, and the space filled with ashes. Shrubs, such as *Ceanothus* and *Magnolias* against walls, should have a double mat tacked in front of them in severe weather, and similar protection will be necessary for such Clematises and Roses which are in a dangerously forward condition, and, unless protected, will in all probability be severely injured if the winter prove severe. Herbaceous borders may receive a good dressing of leaf soil, well-reduced refuse, or manure,

which will enrich the soil and form a suitable protection for the plants. Christmas Roses should be covered with handlights, for which they amply repay in the size of the flowers and purity of colour. Spring bedding plants must be examined, firming the soil about such as require it. If a mulch of cocoa refuse be given between the plants it will impart a neat appearance and enable the plants to pass the weather safely.

Bedding Plants.—Plants in cold frames need frequent examination, removing every particle of decayed foliage, dusting any infested with mildew with flowers of sulphur, fully exposing to the weather on all favourable occasions, and when frost prevails keep them well protected. If the plants become frozen they must not be exposed to the sun until they have thoroughly thawed, which they should be allowed to do in darkness. We have had *Calceolarias* closely matted for ten weeks; they have been frozen all the time, and not a plant failed. Be very careful in the application of water, giving it only to such plants as absolutely require it, and in the early part of fine days only *Verbenas* should be frequently examined, and if mildew is observed apply flowers of sulphur, and those with *Petunias* and *Ageratums* should have a dry airy position with a temperature of 40° to 50°, and no more water than to preserve the plants in health. *Pelargoniums* must have a temperature in which they will be kept slowly growing through the winter, and a light position to insure sturdy growth. A temperature of 40° to 45° at night, and 50° by day, ventilating freely on all favourable occasions. Plants wintered in this way will be in much finer condition in spring than those starved through the winter. Variegated and other *Pelargoniums*, the stock of which is in arrear, should be kept in a warm airy house, and they will soon furnish cuttings which strike freely on a shelf kept rather dry in a temperature of 60° to 65°. Tender plants, such as *Coleus*, *Alternantheras*, and *Iresines*, should have the temperature above indicated, with no more water for the present than will keep them in health. Succulents must have any decayed parts removed; keep the soil dry, but without causing the plants to shrivel, and protect from frost.

PLANT HOUSES.

Greenhouse.—*Tropæolum tricolorum*, *T. Jarratti*, and *T. pentaphyllum* being now in active growth, should be kept in a light position with the shoots regularly trained, which, if not attended to frequently, soon become so entangled as to prevent their being made to look well, being careful in all instances to cover the bottom of the trellis with young shoots before they are allowed to ramble to the top. Keep the soil in a moist condition, but not too wet, or the plants are seldom healthy. *Lachenalias* also must be near the glass and not overwatered.

Pelargoniums.—The Large-flowered, Spotted, Regal, and Fancy *Pelargoniums* are not so much grown as they were before the improved forms of the Zonal varieties came into cultivation; but this is certainly a mistake, as, desirable as are the Zonals from their continuous habit of blooming, the others, from flowering so profusely when most of the spring-flowering greenhouse plants are over, are particularly acceptable for conservatory and general decoration. Moderate-sized plants are most suitable, not formally trained, but no pains should be spared to grow them well, and employ no more sticks and ties than are needed to keep them shapely. Plants intended to flower early in May should now have the requisite number of sticks placed to them, and the shoots trained thinly so as to allow light and air to reach the centre of the plants. Unless unduly vigorous they need not be pinched. Old plants certainly will not need stopping. Later plants will require to be potted, making the soil quite firm, as when lightly potted they produce much foliage and do not flower satisfactorily. At potting it is advisable to place as many sticks as are likely to be required, as when this is deferred until later on their insertion mutilates the roots. Arrange the plants in a good light position as near the glass as possible, and ventilate the house freely except when frost prevails. Keep a strict look-out for aphides, and fumigate upon their first appearance.

Herbaceous *Calceolarias* will require shifting into larger pots before they become root-bound, or they will not grow freely afterwards. Pot rather firmly in a compost of three parts loam, one part leaf soil and well-decayed manure, with a sprinkling of sand. It is essential that the plants be kept cool and moist.

Cinerarias for spring bloom should be shifted into large pots, employing the same compost. Plants in small pots for later flowering should not be allowed to become root-bound, but must be moved to larger pots as they require it, giving the final shift early in February, and they will bloom when spring is well advanced. The temperature of the greenhouse will need to be kept at 40° to 45° by artificial means, ventilating if the day is likely to be fine. Water should be supplied in the early part of the day, and must be given liberally to plants requiring it, too frequent waterings being highly prejudicial.

Conservatory.—*Chrysanthemums* will, if plants have been specially prepared for late flowering and retarded in a north house, still form an important part of the decoration of this structure. The general stock of these plants should be removed and the house made as gay as possible. If due preparations have been made there will be abundance of flowers, such as the following—*Camellias*, *Indian Azaleas*, *Rhododendrons* of the early-flowering section, *Azalea mollis*, *Lilac*, *Acacia platyptera*, *Coronilla glauca*, *Cytisus racemosus*, *Epacris*, winter-flowering *Heaths*, the glowing *Poinsettias*, bright-coloured early-flowered *Cinerarias*, *Primulas*, *Cyclamens*, *Zonal Pelargoniums*, *Roman Hyacinths*, *Roman and Paper White Narcissus*, *Helleborus niger*, *maximus*, *orientalis*, and *olympicus*; common *Primroses*, *Snowdrops*, the indispensable *Crocus*, lovely *Violets*, *Lily of the Valley* in quantity, *Heliotrope*, stately *Richardias*, bright *Schizostylis*, *Pinks*, *Forget-me-not*, *Mignonette*, *Eucharis*, *Epiphyllums*, and equally brilliant *Euphorbias*, *Luculia*, *Daphne indica*, *Jasminum grandiflorum*, *Lapageria*, *Cestrum aurantiacum*, and *Roses*, of which *Niphetos* is especially notable. These with others, if tastefully arranged with foliage plants, make an effective display.

THE BEE-KEEPER.

DESIGNS IN HONEYCOMB.

IN his article on bee shows on page 366 Mr. Pettigrew urges the introduction of more variety and novelty at exhibitions as a means of making them "more gratifying and sensational." I am not sure that I can plead for the "sensational," even although our shows are meant for public attractions, so much as for the educational so far as bee-keepers are concerned. As it so happens that the fancy designs, stars, mottoes, &c., for which he pleads are at the same time highly attractive to visitors and capital exercise for the skill of the bee-keeper, I therefore take up the somewhat novel subject, and shall first of all describe a few of the more striking designs which have adorned the exhibitions of the East of Scotland Society at Dundee during the past few years. The idea originated in 1875 with an Arbroath gentleman, who offered a guinea for the best star in honeycomb, with five points and not less than 12 inches across. If I remember rightly it was two years before a star was produced worthy of the prize. Meanwhile other prizes had been offered for designs, no special form being stipulated, and drew a magnificent turn-out at the 1878 show. Some of these designs were exceedingly elaborate. The most imposing of all was a beautifully shaped vase full of purest comb surmounted by the star above referred to. This was passed over by the judges because of its being built into vase shape by the bee-keeper rather than the bees. The vase had been obtained and filled in sections a few inches deep, which were afterwards built together, the joints being covered by ornament. The idea, however, is a good one. Dealers in glass shades have frequently to cut them down for special orders, and the cuttings or rings of various diameters and depths, when covered by a circular plate of glass may, when finished, be built into towers, pillars, &c. There were two designs in the form of a cross 18 inches high, each consisting of six separate designs, crosses, stars, hearts, &c., built together after being worked by the bees. Here, again, the bee-keeper was considered to have had too great hand in the design. The first prize was awarded to a design, beautiful in its very simplicity—viz., two concentric circles of very fine honeycomb. For protection there was a wooden rim round them, but they were at no point attached to it or to each other. The prize, a honey extractor value 30s., went to a working bobbin-turner near Banchoy. The second prize went to the same house for a beautiful star of six rays worked in a shallow "cogie." The third was of similar design. Since 1878 we have had no chance to get designs finished in Scotland; they require especially good

seasons. Nevertheless, I have seen several promising attempts exhibited—a spread eagle, part of a motto, concentric rings, &c. Mr. Pettigrew may rest assured we are not so far behind as he seems to think, and if he will offer anything tempting at his next Manchester exhibition it will not be our fault if Scotland does not win the day.

I shall now, for the instruction of novices, give a few hints on the art of obtaining designs. The use of shade cuttings I have already explained. I shall, therefore, take the next easiest form of design—viz., that cut out of a block of wood, the vacancy being filled by the bees with comb. For this purpose take two pieces of soft pine wood large enough to contain the design wanted, and each about seven-eighths of an inch thick. Lay them so that the grain of the wood will cross and fasten slightly together by driving a few clean wire nails through both at points that will not interfere with the design. Now draw the shape wanted, whether a letter, a cross, circle, heart, or star, and with a fret-saw cut out the piece. Before placing in the hive separate the two thicknesses of wood, place a sheet of super comb foundation between, and again nail them together. Such designs are best worked when hung in bar-frames, either at the sides of a hive or in an upper storey, and this must be borne in mind when deciding on the size and shape. Tin or other separators must be used to ensure smooth finish. I have worked many such designs, and have been astonished to find the bees working so nearly alike on both sides, though having no “pop-hole” between.

I cannot help thinking, however, that such designs are too mechanical—that is, man's hand is too much seen. I therefore prefer the following method. A board is taken, which is to be the top of a super, round, square, or oval—say a circular glass cutting 3 to 4 inches deep. On this board the design is drawn—a star, concentric circles, or such like—and strips of comb foundation half an inch less in depth than the super are secured along the lines, care being taken to avoid crowding. Vacant corners outside the design may have guides attached in such a way as to secure their being filled with detached and regular combs, or blocks of wood or other material may be temporarily attached, partly acting as separators and partly as stopgaps till the comb is worked. The rim of the super need not be added till the foundation is fixed, and even then only lightly secured to the lid; for sometimes a design will turn out that will be seen to much greater advantage without the rim under a glass case.

There is still another class of designs which are very striking, but which I have not yet succeeded with owing to bad seasons—viz., combs embossed with monograms, geometrical patterns, figures of birds, beasts, &c. To get these a rich honey yield is needed. The slab of comb, say in a large section or an ordinary frame, is first allowed to remain in the hive till perfectly finished. It is then removed, and the design wanted is pricked on its surface. Every cell within the design is now carefully uncapped, and the comb returned to the exact place it occupied in the hive, only it is pushed back nearly a quarter of an inch from its former position. Honey being abundant the bees will lengthen the uncapped cells, seal them over afresh, and leave the design embossed on the comb. By using as separators boards carved out with hollow designs like butter prints, we may have our embossing done without the necessity of removing the comb during the process. The bees will naturally cause the surface of the comb to bulge into all the hollows of the pattern, which, however, must be of a bold type.

Monstrously thick combs are obtained much in the same way as the first style of embossing just mentioned. The bees are allowed access to a space that will serve them for one comb only in the centre of a case that may be from 4 to 12 inches across. This space is enclosed by moveable separators, and as soon as the one comb is nearly worked out, but before it is at all sealed, the separators are pushed back little by little day by day. The bees know no better than to lengthen their cells, which they will continue to do till the box is filled with a single comb. All these operations require considerable attention and no little knowledge and dexterity; but the pleasures of success and an experience extended even by failure are worth the attempt. The winter evenings may be employed in elaborating the designs so far as they are mechanical; let us hope the summer to come may be such as to ensure their perfect completion.—WILLIAM RAITT, *Blairgowrie*.

BRITISH BEE-KEEPERS' ASSOCIATION.

At the monthly meeting of the Committee, held at 105, Jermyn Street, on the 14th inst., there were present Mr. T. W. Cowan (in the chair), Rev. G. Rayner, Mr. D. Stewart, Mr. J. M. Hooker, Mr. W. O. B. Glennie (Treasurer), and Rev. H. R. Peel (Hon. Sec.). The Hon. and Rev. H. Bligh was also present, and discussed with the

Committee his proposals for a competition with the view to the better promotion of cottage apiaries throughout the United Kingdom. It was the general opinion of the meeting that such a competition should be limited for the first year to the six home counties, and that a sum of £21 should be offered in prizes of £6, £5, £4, £3, £2, and £1, “for the best managed and most profitable poor man's economic department of an apiary, such department to be worked with a limited number of hives, upon any principle or combination of principles.” It was resolved that the question be adjourned for further consideration at the next meeting, and that in the meantime a set of rules be drawn up for the management of the competition.

A letter was read from the Secretary of the Royal Agricultural Society, approving of the draft schedule of prizes for bees, hives, honey, and bee-keeping appliances, to be offered for competition at the Royal Agricultural Show to be held at Reading in July next, and stating that the Royal Agricultural Society would be pleased to grant the sum of £30 to the British Bee-keepers' Association to enable the Committee of that Society to carry out the proposed Exhibition. It was resolved that a vote of thanks be sent to the Council of the Royal Agricultural Society for their increased support towards the promotion of bee-keeping.

APIARIAN APPLIANCES AND BEE PRODUCTS AT THE BRIGHTON HEALTH CONGRESS.

WE are glad to be able to note that various societies, whose aims are to assist in the production of good and cheap food for the people, are giving prominence to the exhibition of honey and appliances in connection with bee-keeping, as tending to the increased production of an article of nutritious food and the revival of an almost neglected industry.

The Council of the Brighton Health Congress invited (through Mr. F. V. Hadlow, the Chairman of the Food Department) the Committee of the British Bee-keepers' Association to make a display of honey and bee-keeping appliances at their Exhibition, which commenced on the 12th inst., and allotted space free of charge for the purpose. The exhibition of honey, &c., was under the able management of T. W. Cowan, Esq., the Chairman of the Committee of the British Bee-keepers' Association. Bee hives and other appliances were kindly sent by Messrs. Neighbour & Son, Mr. S. J. Baldwin, Mr. A. Rushbridge, Mr. T. B. Blow, and Mr. Wooldridge. Specimens of small sections of honey in the comb and extracted honey in glass jars were contributed by T. W. Cowan, Esq., J. M. Hooker, Esq., Mr. R. Scott, Mr. Baldwin, Mr. Rushbridge, and Messrs. Neighbour & Son. Hundreds of visitors visited the Exhibition, and much interest was displayed in the department allotted to bee hives, honey, &c. The uses of the various exhibits were explained by T. W. Cowan, Esq., Mr. Baldwin, and Mr. Rushbridge.

The Congress sat daily, and various papers were read on the promotion of health and the production of food. At the meeting held on Thursday, the 17th inst., J. R. Holland, Esq., M.P., in the chair, Mr. T. W. Cowan read a paper on honey as food, which we received too late for insertion this week.

The Judges awarded a certificate of high commendation to the exhibits of the British Bee-keepers' Association.

TRADE CATALOGUES RECEIVED.

Frederick Roemer, Quedlinburgh, Germany.—*Price List of Flower Seeds*.

J. Carter & Co., High Holborn.—*Vade Mecum, 1882, with Coloured Plates*.

Ernest Riemschneider, Altona, Hamburg.—*List of Flower and Vegetable Seeds*.

Hennequin, Denis & Cie., Faubourg, Bressigny.—*Catalogue of Flower and Vegetable Seeds*.

Richard Dean, Ranelagh Road, Ealing.—*Catalogues of Potatoes, Primroses, Auriculas, Pansies, &c.*

Sutton & Sons, Reading.—*Amateurs' Guide, 1882, with Coloured Plates*.



Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

The Cottage Gardeners' Dictionary (J. N.).—This will be more useful than the other work you name, inasmuch as it gives full cultural details on all the most useful kinds of fruits, also kitchen garden crops, and stove, greenhouse,

and hardy plants. We do not know a work of its nature more useful for an ordinary gardener.

Potatoes (E. F.).—Your letter was answered last week on page 550.

Removing Limewash (A Constant Subscriber).—We know of no better mode than washing it off the wall, using long-handled hard brushes and plenty of water, commencing at the top of the wall and working downwards. By scrubbing the wall vigorously you will soon effect your object.

Winchester Red Celery (W. M. T.).—The address you require is 412, Strand, London. We can give no opinion as to the merits of a new variety which we have neither grown nor tasted.

Selection of Chrysanthemums (E. T. H.).—You will find the following half dozen good Pompon varieties—Mdlle. Marthe, Rosinante, St. Michael, Boule d'Or, White and Lilae Cedo Nulli. The Anemone Pompons best suited for the purpose named are Antonius, Firefly, Madame Montels, Marie Stuart, and Dick Turpin.

Collection of Chrysanthemums (San Juan).—The varieties you name are all good, and we should suggest that you add M. Delaux, rich maroon, and Fulton, bright yellow, to the Japanese; with Mdlle. Marthe, white, and St. Michael, bright yellow, to the Pompons.

Peculiar Primula (T. W. T.).—The strange appearance of the Primula flowers you sent is due to the calyx having become foliaceous—that is, it has assumed a leaf-like form closely surrounding and extending beyond the corolla. We have not seen the peculiarity so strongly marked in varieties of Primula sinensis before, though similar changes occur in allied plants, such as the old and singular Jaek-in-the-Green or Gallygaskin Polyanthus. We thank you for letter, and reciprocate your good wishes.

Tous-les-mois (Lorrimore).—The kind of meal or starch known by the above name is obtained from the rootstock of a species of Canna, by some supposed to be C. coccinea, and by others C. aeliras or C. edulis. The substance is prepared in the island of St. Kitt's, and it is said its manufacture is attended with much difficulty. It is highly nutritious.

Protecting Holly Hedge (J. G.).—We know of no more effectual plan for preventing rabbits injuring the newly planted Holly hedge than protecting it with galvanised wire netting. A good mode of fixing the netting is to bend about 6 inches along the bottom at right angles with the remaining portion, burying the bent strip about 2 inches deep, this facing outwards or towards the point of attack, and very few of the animals will succeed in burrowing underneath it, as they certainly would do if either this or a better method of fixing were not adopted. It is not enough to simply sink the lower edge of the wire a few inches into the ground in its natural upright position. If any of our readers can suggest a better, simpler, and cheaper plan for the purpose indicated we will readily publish their experience.

Tropæolum speciosum (J. L.).—It is perfectly hardy and needs no protection whatever when once it is established, as you will perceive by a communication in another column. It is important that the roots be kept moist in transit, damp moss being a good material in which to pack them. Light loamy yet gritty soil will be suitable for planting them in, and a moist and cool position is preferable to a hot and dry one. This Tropæolum evidently enjoys plenty of water, as some of the districts in Scotland, where it grows luxuriantly, are remarkable for a heavy rainfall; this, however, passes away freely, and the soil is not stagnant. It should always be remembered that a rainfall of 30 inches in a low flat district liable to floods is equal in effect to a fall of 60 inches in a hilly district or where the ground is of a porous nature through which the rain passes rapidly. A liberal supply of water, therefore, with free drainage, would appear to be essential to the free growth of this beautiful climber; that is to say, the ground should be moist yet not waterlogged in consequence of defective drainage.

Lime for Gardens (B. H. R.).—Though often nearly white, the magnesian limestone is generally of a yellow colour. It cannot by the eye be distinguished from common limestone of a similar colour, but is characterised by containing a carbonate of magnesia, sometimes in large proportion, hence is injurious to plants. The simplest method of detecting magnesia in a limestone is to dissolve it in diluted muriatic acid, and then to pour clear lime water into the filtered solution. If a light white powder fall it is magnesia. The relative proportions of magnesia in two limestones may be estimated pretty nearly by dissolving an equal weight of each, pouring the filtered solutions into bottles which can be corked, and then filling up both with lime water. On subsiding the relative bulks of the precipitates will indicate the respective richness of the two varieties in magnesia. There is little or no magnesia in either the white or the grey lime in your district, and we should prefer the former for using in gardens.

American Blight (L. J. K.).—We received the box sent previously, but were not able to determine by whom it was forwarded, hence the absence of any reply. The whole of the malformations on the spurs have been caused by the American blight. If the tree were not particularly prized we should have advised its destruction, especially if the others were clean, but as it is a favourite we should endeavour to extirpate the pest that is the cause of so much injury. You have evidently destroyed a great number of the insects, but not all, as we find several fine specimens on the spurs you have sent. Mr. Speed of Chatsworth has found the following remedy effectual—"Take a pint of gas tar and mix with it a pint of dry powdered clay. Form the whole into a paste by adding by degrees a gallon of warm soft water. If this is applied with a brush during winter it effectually destroys all insects, while it does not injure the trees." Another good plan is to mix a wineglassful of paraffin with a gallon of strong soapuds, and with this paint the trees, remembering that as much depends on the manner of its application as on the power of its dressing. Unless it is brushed thoroughly into the crevices of the bark the effects of this or any other insecticide will not be satisfactory. We have no doubt the tree may be cleansed by applying the dressing in a thorough manner and as frequently as is necessary. You will find much information on paraffin as an insecticide, and the right mode of using it, in the "Gardeners' Year-Book" that is just being published.

Nertera depressa and Other Plants (R. C.).—The plant labelled No. 1 is Nertera depressa, and is not difficult to grow. Do not remove the growths. If you keep the plants quite close to the glass in a very light house or frame, and water them copiously, they will flower freely and produce an abundance of berries. This plant cannot well have too much water and sun during the growing season. The best berried plants we ever saw were plunged in ashes on a warm south border from April onwards, and watered daily, often twice a day during hot sunny weather. They were well hardened before being plunged, and were protected with mats when the nights were frosty. But in your district the plants would probably be best plunged in a very light frame; but they

should only be a few inches from the glass, and the frame-light might be drawn off entirely during favourable weather. No. 2 is Chlorophytum orehidastrum variegatum, and succeeds very well in a basket of light turfy soil suspended in a cool house. No. 3 is a Canna, and requires to be kept dry during the winter if in pots, otherwise store the roots in a dry cool place safe from frost. In the spring the plants may be transferred to the flower garden, and if planted in rich soil they would grow strongly and form an imposing bed in a suitable position.

Exhibiting Chrysanthemums (Competitor).—"At a recent exhibition a class was provided in the schedule for 'Twelve Pompons, not less than six varieties, to be shown in bunches of three, with foliage.' The chief prize was awarded to an exhibitor with three individual flowers of each variety. The second prize was awarded to another who staged three trusses of each variety, each bunch of three trusses probably containing over a dozen individual blooms. According to the reading of the schedule ought not the latter stand to have been disqualified?" We state this question in order that our reply may be better understood and of more service generally, as the subject has much more than a personal significance. The second-prize stand referred to could not have been disqualified, as "bunches" certainly were staged—a "bunch" meaning a cluster. A number of the same kind growing together, or a number of stems containing single flowers tied together, would form a bunch. In the Kingston schedule the stipulation is "Twelve bunches of Pompons, distinct, three stems as cut to form a bunch (Anemone Pompons and Hybrids excluded)." Mr. Moorman was rightly adjudged the first prize in this class, each of the stems having six or more fine flowers. According to the extract from the schedule first referred to, the judges might, perhaps, have disqualified the first-prize stand, as blooms, not bunches, of three varieties were staged, but they no doubt, as judges usually do, exercised their discretion in reading ambiguous conditions. According to the Kingston schedule they could neither have disqualified bunches of three single blooms as cut from the plant nor bunches containing several blooms on one stem. Whatever is meant by committees should be stated. Either "three single blooms to form a bunch," or "three bunches of flowers as cut, number of blooms not limited," would make the matter plain to all.

Grafting Fruit Trees (A Beginner).—Apples are grafted on the Crab and Paradise stocks, the former for orchard trees, the latter for bushes. Crab stocks are raised from seed, Paradise stocks from layers and cuttings inserted in the autumn. Pears are grafted or budded on Pear stocks for standards and trees for free growth generally; on Quince stocks, for smaller trees and early fruitfulness, the stocks being raised as above mentioned. Plums are budded or grafted on Plum stocks, and Peaches or Nectarines are budded on stocks of the same kind. Grafting is done in the spring when the sap commences rising, and it is an advantage if the stocks are in advance of the grafts or scions, by the latter having been retarded by cutting from the trees before any signs of growth are apparent, and storing in soil in a cool position. There are various methods of grafting; for young trees Baltet's system of crown grafting, as represented in the accompanying figures, being simple and good. The stock A

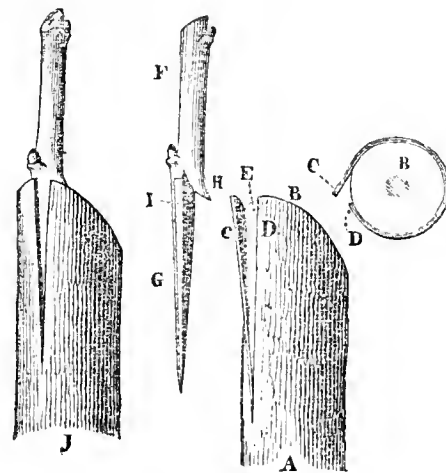


Fig. 90.

done but the waxing and tying. We add the plan of the stock, B, the portion of bark, C, raised from the wood, and the other, D, which remains untouched. These slight variations, which may be infinitely increased according as reason and practice dictate, have for their object the hastening of the union between the graft and the stock. A small work on grafting that would be useful to you is published at 170, Strand, London, the price, we think, being about 1s.

Names of Fruits.—We have many times notified that only six varieties of fruits can be named at once; still large packages reach us, the contents of which cannot be examined. Some fruits are not named because the sender's name does not accompany them, and we cannot always determine to whom the respective parcels belong, even by the aid of letters received by post. Pears, we have previously intimated, ought to be ripe or approaching ripeness when sent, or a number of them cannot be identified. All packages must be carriage paid; unpaid parcels are sent every week that are not taken in. The fee for naming fruit to non-subscribers is 5s. It is important that these conditions be attended to for preventing disappointment. (Reader).—The Apple is an imperfect example of the Blenheim Pippin. (J. H.).—1, Reinette Biel; 2, Stamford Pippin. (James Searle).—13, Probably Northern Spy; 14, Margil; 15, Lucombe's Pine Apple; 16, not known; 17, Dumelow's Seedling; 18, Kentish Fillbasket. (G. Picker).—The large conical Apple is Catshead, which we think we have named for you before; 1, Trumpington; 3, Gloria Mundi; 6, Court of Wick. No numbers were attached to the others, therefore we cannot name them. Numbers should be firmly secured to the fruit.

Names of Plants (G. P.).—1, Pteris argyrea; 2, Polystichum aculeatum; 3, Pteris serrulata cristata; 4, Adiantum pubescens; 5, appears to be a Nephrodium, but the specimen was not sufficiently mature to enable us to determine it with certainty; 6, Helleborus foetidus. (Reader).—It is impossible to name Conifers with certainty from small sprays unless information relative to the character of the specimens accompany them, and we can only say that No. 1 resembles the male form of Juniperus chinensis, and No. 2 J. virginiana, the Red Cedar. (C. E. M.).—1, Testudinaria elephantipes; 2, not recognisable; 3, Euonymus japonicus latifolius variegatus; 4, apparently a Francoa, but the specimen was insufficient for identification without flowers; 5, Sedum carneum variegatum; 6, Alonsoa incisa. (T. J. H.).—Adiantum macrophyllum. (R. C.).

—1, *Nertera depressa*; 2, *Chlorophytum orchidastrum variegatum*; 3 a *Canna*, for particulars of culture see above.

Bees in Winter (H. R.).—If you had the stock from a successful bee-keeper he probably gave you good advice. The weight of the hive is an indication of this, and you had better let the zinc remain as it is.

COVENT GARDEN MARKET.—DECEMBER 21.

OUR market presents a different appearance to what it usually does during Christmas week, everything being dull with an absence of the class of stuff we expect at this season. Grapes are in good supply, but show signs of bad keeping, while Pears are nearly off the market, samples being confined to small arrivals of French and Californian Easters, which are selling at excessive rates.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1/2 sieve	1 0 to 3 6	Lemons.....	1/2 case	12 0 to 16 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	0 0 0 0
Cherries.....	1/2 lb.	0 0 0 0	Nectarines..	dozen	0 0 0 0
Chestnuts.....	bushel	16 0 0 0	Oranges.....	1/2 100	4 0 6 0
Currants, Black..	1/2 sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
„ Red.....	1/2 sieve	0 0 0 0	Pears, kitchen ..	dozen	1 0 1 6
Figs.....	dozen	0 0 0 6	dessert.....	dozen	1 0 3 0
Filberts.....	1/2 lb.	0 0 0 0	Pine Apples ...	1/2 lb.	1 6 2 0
Cobs.....	1/2 100 lb.	75 0 0 0	Strawberries ...	per lb.	0 0 0 0
Gooseberries ...	1/2 sieve	0 0 0 0	Walnuts.....	bushel	7 0 8 0
Grapes.....	1/2 lb.	0 6 4 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney....	1/2 100	1 0 0 0	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	pickling.....	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	1/2 sieve	2 0 2 6	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushel	2 6 3 0
Carrots.....	bunch	0 4 0 6	Kidney.....	bushel	3 0 3 6
Capsicums.....	1/2 100	1 6 2 0	Radishes....	doz. bunches	1 0 0 0
Cauliflowers.....	dozen	1 0 3 6	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsafy.....	bundle	1 0 0 0
Coleworts.....	doz. bunches	2 0 4 0	Scorzoneria ..	bundle	1 6 0 0
Cucumbers.....	each	0 6 0 8	Seakale.....	basket	2 0 2 3
Endive.....	dozen	1 0 2 0	Shallots.....	1/2 lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 0
Garlic.....	1/2 lb.	0 6 0 0	Tomatoes.....	1/2 lb.	0 8 1 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



POULTRY AND PIGEON CHRONICLE.

AGRICULTURAL IMPLEMENTS AND MACHINERY.

(Continued from page 552.)

THE next point to be considered is between the use of carts or waggons for the various works on the farm, at least as the advocates of each state their opinions and experience. Having, however, given the most practical and useful observations of those farmers who prefer carts, let us now hear what those who use waggons in preference have to say. It is stated in their favour that light two-horse waggons are preferable to one-horse carts, but more especially upon hilly land or on the strong soils where small ridges and deep water furrows prevail, as the loads are not so liable to fall off at harvest or hay time in very dry weather; and that tying the load is more effective than with carts. The light waggons most approved in the southern and south-western counties are those made in Dorset, Wilts, and Gloucestershire; for, in fact, some of the makers in these districts offer us a light waggon adapted for one horse capable of carrying a ton and a half burden, and by the same style and pattern others capable of carrying a load varying up to three tons, the difference only, or chiefly, being the width of the wheel tire. These for the most part have wheels so high in front that they do not turn as required; but the waggons for one or two horses as furnished by the Bristol Waggon Works Company are made so that the front wheels will lock under the body, and can then be turned in its own length. These are furnished at a moderate price, and will

carry a load up to four tons with wheels of wide tire in proportion, the horse power being regulated of course by the weight to be drawn.

We shall now give our opinions upon the subject, and endeavour to recommend to the home farmer, as well as the implement makers, what style of waggons and carts we think most likely to meet the general requirements for work on the home farm, and at the same time to be adapted for use in connection with all the improvements which have lately been obtained by steam power in our labour-saving machinery. The latest improvements in waggons have somewhat altered our opinion, although we have contended for many years that single horse carts or frames for harvest hay-carting were the most economical. They are on some farms, but for general purposes, such as use on hilly land, in water meadows, and on arable land with small ridges and deep furrows, as also in carting corn and other merchandise on the high roads, we think one or two-horse waggons are the best and safest, although the first investment or purchase would be rather greater than for carts. There is, however, one qualification we must make in the advocacy of any observations connected with this subject, that we now as ever have always recommended the use only of horses standing not less than 16½ to 17 hands high, with weight and activity in proportion; in which case we expect, under ordinary farm work either on the field or high road, each animal to be master of a load of from 25 to 30 cwt., and under these circumstances the use of waggons adapted for one or two horses are to be preferred to carts. For ordinary animals, however, only capable of drawing about 20 cwt. loads, the Scotch harvest frames we think best. It must be quite understood that we recommend two sets of implements, for, whether waggons or carts are preferred, those tipping carts fitted for carting dung, chalk, &c., must also form an important and indispensable part of the farmer's stock of implements in preference to the use of carts for all purposes with convertible apparatus of ladders.

We must ask the implement makers to consider the subject of certain reforms in the farm implements in our opinion rendered necessary in connection with steam power and machinery. The first point is that nearly all the work which was formerly overhanded, such as unloading corn and hay at the stack, and was the severest manual labour done on the farm; but since the introduction and use of the elevator in raising the hay and corn to the rick underhand labour is only required of the men by casting it into the elevator, in consequence there is no advantage in having carts and waggons made high in order to assist or diminish the labour of unloading. Implement makers should, therefore, consider how much the carts and waggons can be lowered in their build without adding to the draught to an appreciable extent, and thus favour the labour of loading. It may be also asked how far the tipping carts for manure, chalk, and heavy substances can be lowered so as to facilitate the work of loading and yet to maintain the power of tipping unimpaired; for it seems to us that the crank axle is worth attention in connection with the improvement of dung carts without interfering with the advantage of tipping, which is of course indispensable. Again, in the case of harvest frames it is worth consideration how far these can be lowered without disadvantage in order to save labour in loading. We consider those changes which are now coming largely into operation, such as tying the crops into sheaves by the improved sheaf-binding harvesters, is greatly in favour of harvest frames; for if no corn is carted to the stack in loose condition the load would require no tying, especially if the frames, waggons, or carts were made as low as possible. We think that any of the harvest frames we have noticed, either offered by the Bristol Company or other makers, may be lowered with benefit, even if it necessitated bent shafts.

Before quitting the subject of carts we must notice that light spring milk carts are becoming of more importance as the supply of milk is continually on the increase. The Bristol Company offer light vans and milk carts, but we think that they are each set up too high. More in accordance, however, with the requirements for the transit and delivery of milk is the spring milk cart exhibited at the Derby meeting of the Royal Agricultural Society, and made by Messrs. Vipan & Headley of Leicester. It appears a well-made and practical cart either for delivering milk in a town or for conveying railway cans to and from the farm to railway stations. In its make we notice a cranked axle secures a low body, of great importance in saving labour, and strong springs prevent undue jolting. For carrying cans to the railway four cans holding twenty gallons can be carried easily, and probably six if required. For milk-selling in towns a removeable frame-work allows of two swinging cans being carried, from which the milk is drawn through taps. For filling the delivery cans the shafts can be raised, thus bringing the cans to the proper level,

and avoiding the necessity of lifting them when full. This is highly spoken of by the Judges at the Exhibition, and is therefore worth the notice of the home farmer and implement maker. Messrs. Hornsby & Son, Limited, exhibited a novel Turnip cutter at Derby, which actually cuts the last slice, and thereby avoids a certain amount of waste which has hitherto occurred in ordinary machines owing to the last slice passing into the skep or basket—a large piece all, or nearly all, rind, and which is refused by sheep and wasted. The improvement in the cutter is obtained by the addition of a perforated guard or shield fixed underneath the barrel, so that any piece which may escape uncut from the front cutting-plate is prevented from falling into the basket, and is carried round to the hopper again to be forced through the knives with the other roots. The action is perfect, and the result is a great practical improvement in the economy of cutting roots, especially for sheep fed in the open field in troughs. Messrs. Perkins of Hitchin have made important improvements in their corn screen. The original polygon form is now replaced by a circular frame which is made to revolve eccentrically, thereby securing a much more efficient action, which is a contribution of a rotary and longitudinal motion. The frame is also capable of carrying various screens which are easily removed and replaced. The screens are stamped out of metal plate, so that the openings cannot vary in size. This screen has a number of indents on the inner surface. These receive the weed seeds and carry them round till overcome by the force of gravity; they fall into a sloping receptacle in the lower portion of the screen, whence they are discharged.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The work attendant upon Wheat-sowing is now nearly concluded, and the sooner it is completed the better, December being better than January, and January being better than February for the completion of sowing. The best kind of Wheat which we know as a red berry is the Nursery, and the best white Wheat the Club-headed Rough Chaff. Although the latter is usually sown at the autumn seed time, yet on all dry soils and in favourable climates, like the southern and south-eastern counties, it will do better than any other white Wheat. It will not only tiller well and keep plant in the spring, but yield grain of fine quality.

Chalk-carting for all soils which require it should now be done, and also clay-carting for the sandy and gravelly soils. Now these substances, although they cannot always be laid out at the time they are brought on the farm, yet they may with advantage be deposited in heaps in or near to the field, and then carted out and spread as soon as the weather will admit of the work being done. This chalking of land is a matter of the first importance, for we are through our own experience quite satisfied that no land can be profitably cultivated in the absence of a proper amount of either chalk or lime. We have inspected large tracts of land lately, and in many instances we found that the fields were quite out of chalk, as evidenced by the weeds, which will immediately be noticed by those who are acquainted with their habits of growth.

Hand Labour.—The men are now employed in filling dung from the boxes to be heaped in readiness for application to the Clovers as soon as it can be drawn on the land; but it should be spread directly, in order that the rains may fix it on the soil, and also carry the soakage of the manure to the roots of the Clover plants. The water furrows on the Wheat land will require looking to, and be relieved of any accumulations of soil, which may be spread thinly on each side of the furrows. Trenching in the pastures may now be done if it is not intended to turn the cattle thereon during the winter months. If cattle are to feed on the pastures in the following summer we prefer to make out the trenches in the spring, and the proceeds burned as soon as dry. This will furnish good ashes either for laying out on the pastures or to be held in reserve for drilling with corn or Mangolds or other root seeds.

The men may now be employed in the woodlands cutting underwood and converting for various purposes, such as hoop rods, Hop poles, also bavins, but putting on one side the bushes, &c., with certain rods as stakes and for making dead hedges. Pitting Swedes and Carrots may be carried on during mild and open weather. This is usually done by casting them together into small heaps and covering with earth. Upon any dry land, such as sand, gravel, or chalk, it is a saving of labour to open a space with the plough by turning out three furrows each way twice and cast the roots into the trench or double furrow thus made, and then returning with the plough the reverse way will nearly cover the roots, the completion of which is best done by shovelling a portion of earth on the top to a point, with a slight trench on either side. In ordinary seasons the roots are found to keep well in this way, and are easily put together and more easily distributed or cleaned for use in the spring. The women may assist the men in pitting root crops, also in forking out the lumps of Couch grass in the root crops and in the young Clovers; for we maintain that it is advisable to attack the Couch in this manner, as it prevents the roots spreading over the land, and eventually saves considerable horse labour at a comparatively trifling cost.

Live Stock.—The Somerset horned ewes have now finished lambing, some of the earliest of which have been sold to be killed for Christmas lamb. The greater portion of these flocks will be sold between the middle of the months of January and March. The west county and Dorset down ewes are now fast yeaving their lambs, and will require the shepherd's constant attention. They should be prepared with remedies for the young lambs suffering from the white scour; the use of a few drops of tincture of opium in a little water is the safest and quickest remedy, and may be repeated every three hours until the diarrhoea has ceased. The ewes will require treatment after a severe or protracted lambing time; carbolic acid is the remedy used by many flock-masters to be applied to any injured parts, and thus prevent gangrene or mortification. The latest advised remedy, however, to be used in the same manner is a solution of salicylic acid. Bad and inflamed udders, however, should be treated with sugar of lead ointment; but if likely to mortify the verdigris ointment is a safe and sure remedy if taken in time.

There is no branch of our stock farming which requires so much attention, care, and nicety in detail as the fattening of early lambs and ewes simultaneously. Our mode is to feed the ewes and lambs, whether of the horned or down breed, in the open field; but although it is often done where the land is rather flat and becomes dirty, yet if the climate should be good, either in the southern or eastern counties, they will then do well without shelter if judiciously and regularly fed as follows. As soon as the lambs begin to eat we give them a little of the finest Dutch Clover hay, which should be grown on purpose for them. We have grown it as fine and perfect as a sample of hops, without any other grasses in admixture. The root-feeding should be white Belgian Carrots and the white hearts of the Champion Drumhead Cabbage, quartered into the Gardner's cutter and passed through twice, which reduces the Carrot roots into small pieces like dice, and the crisp sweet Cabbage is also reduced very fine, and easily taken up and eaten by the lambs when they first begin to eat; and it is of great importance that they should eat early, and as they eat but little it should be of the best and most forcing quality, because it relieves the ewes, particularly when they have twins. The Carrots and Cabbage, after being cut fine as described, should be powdered over with cake meal, by which means the lambs take cake before they would eat it in any other way, the aroma from the Carrots being very enticing and agreeable. They have also oil-cake in the covered troughs, cracked and passed through a riddle to make it as small as cracked beans or peas, in which state cracked peas are mixed with it, and for lambs we prefer American bag or barrelled cake with grey peas. The bullocks which we usually sell at this Christmas time we frequently buy in store condition in the month of May, from which time until the first week in October they are placed in boxes 10 by 12 feet and fed with Clover, Saintfoin, or Lucerne cut fresh from the field daily, and the bullocks in addition receive also 4 lbs. of cake each per day. From October 1st until sold they get cut roots, about 56 lbs. of Carrots or Mangolds being preferred per day, and 4 lbs. cake and 2 lbs. bean meal mixed with the cut roots daily, and sweet oat straw *ad libitum* in the racks in the ordinary state. We have given the mode of feeding somewhat in detail in order that it may be understood that bullocks, not being overfed with hay and large quantities of cake, will yield a clear profit of from 3s. to 3s. 6d. per week, all expenses paid and charged.

POULTRY AND PIGEONS

BANTAMS PAST AND PRESENT.

THE formation of a Bantam Club has drawn new interest to these old favourites. It is high time that it did so, for to few varieties of poultry has more harm been done by fashion. The extended classification which under the Club's auspices is now being given to them at shows, will give encouragement to many who hitherto have only been able now and then to trust their birds to the somewhat hazardous chance of the variety class; others will, we hope, be choosing a breed in the hope of improving it. We will, therefore, look back some thirty years, and see what the Bantams have been and what they are.

Time was, long before general poultry shows were thought of, and when a vision of the present long lines of pens at the Crystal Palace or Birmingham would have seemed the wildest dream, that many real fanciers amused themselves with breeding pigmies, aye, and formed societies for showing them too, but of these we have little record. It is about eighty years since Sir John Sebright began the production of his exquisite little laced Bantams; thirty years later the variety may be said to have been established. In the days of the earlier poultry shows, roughly speaking thirty years ago, it was exhibited in great perfection. We have not since that time made such advance in the Bantam line as we might, but we will try to see where there has been progress and where falling-off.

What has been lost and what gained in this particular variety? Probably birds are now to be found as accurately laced as ever, and the pure white ground colour of some strains of Silvers has been an addition of later breeders. But what has the sacrifice been? To begin with, we can remember Sebrights little more than half the size of the present exhibition birds; truly, in Bantams this is a great retrogression. Then the characteristic hen-tail of the cocks is seldom now seen in anything like perfection. But more than all, the beautiful coxcombical Bantam carriage has been much lost. Let any fancier with an eye for form look at the lanky ungainly tucked-up creatures now often in a prize pen, and then read descriptions of Sebright carriage a quarter of a century ago, and his only rational conclusion will be that much has been lost. What says Dixon, whose book was published in 1850:—"Here is a little whipper-snapper! His ample tail, from which sickle feathers are absent, is carried well over his back. His dependent wings nearly touch the ground. He is as upright as the stiffest drill sergeant, or more so, for he appears now and then as if he would fall backwards, like a horse that over-rears himself." What again writes Mr. Hewitt, in Tegetmeier's Poultry Book?—"In the carriage of these birds we find the very extreme of pride, vanity, and self-importance. The feet are raised in walking much more than in any of the other Bantams, and planted again with the greatest deliberation and precision. When alarmed their deportment is most striking; the wings drop to the ground, not listlessly, but as if determined to make the most of their tiny proportions; while the head is thrown back and the tail raised, so that they nearly meet." Other writers lay stress on the nervous motion of the Sebright cock's head being almost like that of the Fantail Pigeon. These descriptions are hardly that of the Sebright of 1881. A large field, it seems to us, is open for the improvement of the breed by intelligent fanciers in smallness and carriage.

On the other hand there has been a great gain in the production of the whole family of Game Bantams. At many a show now they are the chief feature of the Bantam classes. The most numerous by far, yet at the great metropolitan shows of 1852 and 1853 we believe there was not a single pen. Their failing seems to be a tendency to revert to the size of their Game ancestors. Time ought to improve this, for we have often observed that in the case of those varieties of Bantams which have been exhibited from time immemorial no amount of over-feeding seems to increase their size. The great point still to be tried for in Game Bantams is, as it seems to us, the combination of really gamy carriage and characteristics with tiny size. Competition is, however, so close that the fancier is bold who starts with the determination to make himself a name for Game Bantams.

White and Black Rose-combed have, we fancy, on the whole been much improved; a little has perhaps been lost in carriage, but much gained in comb and earlobe, and brilliant gloss of the Blacks. There is room still for improvement in the Whites, and we should be glad to see a fancier or two, who have accommodation to keep white birds clean, and who know how to show them, taking up the breed.

Nankins have always been among our favourites, and so once were Partridge Bantams, their cousins of a darker shade of colour, but the latter are extinct. There are quite enough Nankins here and there to be picked up still to form the nucleus of new strains. They are undoubtedly an ancient race, and are no exception to our rule as to the size of the older breeds being kept down without difficulty. Japanese are entirely a new importation. We cannot find a trace of them thirty years ago. Doubtless they have been bred small for ages in Japan, and even originally reduced from a fowl still common there of larger size, conspicuous for its enormous tail. Pekin Bantams, too, the result of the sacking of the Chinese Emperor's Summer Palace, have been gained, and are now practically lost again. To the best of our knowledge their existence hangs on the slender thread of one yard, the possessor of which will not sell a bird or egg. It would take very many years to produce their like by judicious crosses of small Cochins with other Bantams. It might probably be done, and the attempt would be worthy of some second Sir John Sebright, to be immortalised in the poultry yard. Cuckoo Bantams are probably far better than they ever were before. One or two exhibitors have by their enthusiasm made them almost invincible in Bantam variety classes, whence they very properly are passing on to classes of their own. It is a misfortune when any one breed of large or small fowls monopolises too much attention in general variety classes and hinders the exhibition of other and new kinds. Booted Bantams there were long ago and are still. There seems formerly to have been more variety in their colour than we have now, or at least than we have in good specimens. They had become well nigh extinct, but a suggestion, we think in Wright's Poultry Book, that they would be a pretty "fancy" for one in search of such, caused the revival of the White

variety. For some years they flourished in clever hands, but have again almost disappeared. The difficulty of keeping their foot feathers in good trim is a drawback to them; but a Bantam fancier should be one able to attend to such detail in his yard, and have plenty of small pens in which his pets will live happily through the exhibition season and keep in good condition. There were formerly many quaint and pretty Booted Bantams—buff, and speckled and spangled, but few survive. Here, too, is a field for an enterprising breeder. Blacks are often still seen, generally with some red about their wings, but quite good enough to merit attention and improvement. About the last addition to the variety class are tail-less; we have lately a very pretty pair, like miniature tail-less Leghorns. Rumours, too, have reached us of Brahma Bantams one day to proceed in perfection from a famous Brahma yard. An American correspondent has described to us, too, White Polish Bantams—exquisite little creatures, if only the imagination of the New World does not unduly magnify their charms.

Such are the Bantams which we know or have known—enough for many fanciers to choose a *spécialité* and improve it. We wish the Club every success in extending its sphere of operation.—C.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at Charing Cross Hotel on Friday, 16th, at 2 P.M. There were present Messrs. S. Lucas (in the chair), T. W. Anns, and A. Comyns.

NEW MEMBERS.—The following members were elected:—Frank Barnes, Farnham, Surrey; R. R. Fowler, Prebendal Farm, Aylesbury; Hon. Mrs. C. Ives, Moyns Park, Birdbrook, Halstead, Essex; H. J. Gunnell, Shelford, Cambridge; F. C. Lawson, Bell Street, Reigate, Surrey. The following new associate members were elected:—J. Bloodworth, Wycombeville, Cheltenham; J. F. Hills, Sudbury, Suffolk; A. Johnson, St. John's, Woking Station, Hants; R. Feaks, Covent Nursery, Cambridge; E. E. St. Quintin, Lee Hall, Lee Road, Lee, Kent. Mrs. Ricketts, Knighton Vicarage, Radnorshire, late an associate, was elected a member.

CLUB SHOW.—The Secretary was directed to communicate with the various railway companies with the view of obtaining cheap return tickets for visitors to the Show to be held at Cambridge on 4th and 5th January.

DISQUALIFICATIONS.—One or two important cases were discussed, but as the meeting was a small one and the matters were not quite ripe for decision it was thought best to postpone the further consideration of them.

NEXT MEETING.—The date of the next meeting was fixed for Thursday, January 5th, 1882, at the Club Show, Cambridge, at 10 A.M.—ALEX. COMYNS, Hon. Sec. Poultry Club, 47, Chancery Lane, December 20th, 1881.

OUR LETTER BOX.

Early Chickens (W. J. E.).—Early chickens are easy to rear if you have a barn or outhouse with an earthen floor in which to keep them. They require protection from rain, draughts, and cutting winds; they also want to be warm during the long nights of winter.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
December.			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
			Inches.	deg.			deg.	deg.	deg.	deg.	deg.	
Sun.	11	29.691	30.0	29.8	N.W.	40.8	36.5	29.5	41.2	25.8	0.039	
Mon.	12	29.827	38.0	37.3	N.	40.3	40.0	29.6	48.3	27.0	0.092	
Tues.	13	30.308	34.3	34.0	N.E.	40.0	33.8	31.0	50.3	24.1		
Wed.	14	30.291	33.2	33.0	S.E.	39.1	41.9	30.2	55.4	23.4	0.110	
Thurs.	15	30.078	41.7	40.3	S.	39.4	42.6	32.2	44.4	26.4	0.69	
Friday	16	29.795	42.6	41.7	S.	40.1	44.3	37.5	47.1	26.3	0.157	
Satur.	17	29.249	45.7	44.6	S.W.	40.6	51.8	40.0	64.4	34.4	0.710	
		29.891	37.9	37.2		40.0	42.3	32.9	50.2	27.1	1.177	

REMARKS.

11th.—Frost in morning; dull day, with slight rain in evening.
 12th.—Dull and gloomy; drizzling rain greater part of the day.
 13th.—Fine but misty during the day; thick fog in evening.
 14th.—Foggy early; moderately fine day.
 15th.—Dull and rainy.
 16th.—Wet morning; fine latter part of day; starlight night.
 17th.—Wet morning; bright for short time in middle of day; very stormy afternoon with heavy rain; gale at night.

A damp week with heavy rain on the last day, temperature lower than last week and below the average.—G. J. SYMONS.



29th	TH	1ST SUNDAY AFTER CHRISTMAS.
30th	F	
31st	S	
1st	SUN	
2nd	M	
3rd	TU	
4th	W	

GARDEN MANAGEMENT.

QUESTIONS on this subject are frequently asked by owners of gardens, also by young men taking charge of gardens for the first time; and certainly the subject is one of great importance to all concerned with horticulture, no matter whether they may be owners, lessees, gardeners in large places, single-handed men, or workmen generally. All have, more or less, to do with the management of the garden, and the subject deserves and requires much study if the best has to be made of everything.

It is not my intention now to enter fully into the question of profit and loss, although there was never a time when this was taken more into consideration than now. In my opinion money properly expended in labour and other things connected with cultivation is amply returned in the produce; however, be this as it may, we may all rely that money spent in gardens at the present time is being weighed and considered by owners, and economy should be the rule with all. But doing with less labour and buying fewer plants and seeds are not the only ways of saving. Bad management is the most serious part of garden expenditure. Loss and dissatisfaction are the only accompaniments to this, and it will eventually do more harm than anything else.

There are many ways of managing things badly. Carelessness and neglect are two prominent features in it. Abusing confidence and allowing third or fourth-rate culture to take the place of first-rate work are other forms. Idle habits and a general course of large or small deceptions by anyone connected with a garden may also be included as important items in bad management. Good management, on the other hand, is a simple matter, easily accomplished by all. An unwavering desire to keep time and do everything in the most conscientious manner are good signs; and while they give pleasure to those who perform them, they are also very gratifying to employers.

Conscience is the helm or regulator of a successful routine. A head gardener should have a large share of this, and those under him should not be wanting in it, or good management will be difficult, at least for a time; but those with a determination to persevere in rectifying errors both in themselves and others generally succeed in placing things right.

To induce those employed in the garden to work properly is the first and most important step to good management. A gardener may have the best intentions, but if those under him are otherwise inclined all will not go right. The workmen we have found worst and dislike the most are those which make a

great show before the face and are the most idle behind the back. If they think their employer is about they will keep their time to a second; but if he is known to be away, one hour or more behind is looked on as nothing. Before-the-face work will be done most particularly; behind-the-back work will only be carelessly done. Trenching will be turned into digging, and where there should be a heat of 80°, 50° may be the figure. Tools, which should all be placed in one house, will be left in out-of-the-way corners, many of them, perhaps, never to be found again until they are spoiled. All such practices as these indicate bad management. All lead to loss, and in the end a reduction of the money devoted to horticulture, as it is out of all reason to suppose that anyone would continue to spend money to uphold such courses.

Reason in everything and for everything is what is much wanted by all to insure perfect garden management; but it is not always the gardener who is lacking in reason. We have known employers who expected more from one man and one acre of ground than could possibly be had from three men and as many acres of land. Others, again, with two or three vineries could not understand why they had not Grapes all the year round when such and such a one had them, but forgetting all the time that in their case the number of vineries were double or more those of their own. With such employers the most skilled managers would never succeed. Still, while many know of cases of the kind I have just mentioned, it is also well known that kind and liberal employers are often greatly deceived and robbed by those under them, and this may not be so much by giving things away or selling them, but the time lost through idling, inattention to proper hours, and similar failings amount in the course of twelve months to a greater loss than many imagine. To lose half an hour in the morning, five minutes at breakfast time, ten minutes at dinner time, and leave off work fifteen minutes before time at night, may not appear much day by day, but calculate what those odd minutes and half hours will amount to in a year, or, further, ten years. This is the true way to look at the matter, and we must act accordingly.

Poor cultivation may sometimes indicate want of experience, at other times neglect on the part of assistants; but if time is well kept in the case of the former, and everything is done in reason, there is more hope of success eventually resulting than with the latter. When we see a young man who knows little, but is always at his work diligently in working hours, we feel more satisfied, and have more hopes of him than some which may be more forward but less genuine. From Mr. Pettigrew and others much good advice has lately been given to young gardeners, and on this account I will only remark that much of the garden management depends on them. In watering, firing, cultivating the soil, and many other duties, they can do their work well or most indifferently. They can also be persevering, and by painstaking may save the head gardener much trouble; and of this they may rest assured, that as they conduct themselves so will their success in life be. Nothing is too much for considerate employers to do for deserving workmen, and the opposite is the case with the other class.

Many employers who have found from experience the importance of having workpeople thoroughly trained have offered suggestions on the subject, and a correspondent from county Wicklow suggests remarks on early rising, doing work regularly, placing tools away properly, and other useful matters,

all of which must be attended to if garden management has to be creditable. In some gardens young men are expected to be up for hours before the usual time and work all day besides; but with this we do not agree, as gardeners have no more right to work more hours than any other class of workmen, nor have they any licence to be behind them any or every day. No good will ever result from loose habits in time. Our greatest factories would soon come to a standstill were their workmen as unpunctual as many of those in gardens. In this respect we had a grand lesson while employed in Kew Gardens many years ago. There the bell was rung punctually at 6 o'clock A.M., the entrance door was kept open for five minutes afterwards, when it was closed, and all those shut out had to remain out until breakfast time, when a quarter of a day's pay was deducted from their wages. Defaulters were entered in the book, and at the end of the year it was easily seen who were the careless men. Deducting the money for time lost besides the black mark had a wonderful effect on many, and if this plan were more adopted we know of some estates where hundreds of pounds would be saved and the management would be better. So long as employers have to bear the loss of such conduct matters are difficult to improve; but when a just master deals fairly between man and man, and makes those who lose time lose the money too, a better lesson is given than all that could be spoken or written in any language. In many places fines are imposed for leaving tools where they ought not to be, and of this we also approve when words have no lasting effect. Our remarks have so far mainly applied to gardens where there is a number of men employed, but small places do not differ from large ones in their general management. Punctuality must be observed in them too, and all the other details must be adhered to, only on a smaller scale.

Next in importance to managing the men is arranging the work, and this devolves chiefly on those in charge. No person should ever be kept waiting and losing time until another job is found for him after finishing his last; indeed, before this men should be told where to go next, dividing them if needed, according to the work in hand. Much time is often lost in having more hands at certain work than there is room for. A good manager will see that this never occurs, and the work will be done in season and according to weather. In going from home sometimes, when it may be fine in the morning, we never forget to state what has to be done should it rain. This we find forwards the work wonderfully, as doing the dry-weather work in dry weather, and wet-weather work when it rains, is the means of placing the work generally in an advanced state. In fact, where a garden is fairly manned, no matter whether its size may require two or a dozen men, if the work is only done according to the weather there need seldom be anything behind. Thinking it is not worth while going out when it is fair, as it is sure to rain again soon, is not the way. Time is then lost which may never be made up in dry weather. "Go in when it is too wet and come out whenever it becomes fair," is our order to all; and were it not for such orders as this we should want one or two more hands to keep our garden in its present state.

Respecting the proper hours to work in a garden, we think ten per day is right, beginning at 6 o'clock in the morning and leaving off at 6 o'clock at night, with one hour for breakfast and the same for dinner in summer, or so long as light admits of full time being worked; and when this cannot be done work from daylight to dark, with half an hour for breakfast and the same for dinner in the shortest days. For long there were no short Saturdays in any garden, but now they are rather general, and on that day work is given up two hours sooner than during the rest of the week. To those who do their work properly no one will grudge this; in fact, really deserving men we always like to treat liberally in this matter, allowing them a day now and again as it is wanted and can be spared, and not being too hard in stopping every hour off their wages which they might chance to lose through sickness; but it is only those who try to make up for this time when they are at work that we treat in this manner. Shirkers and those who will not do five minutes' important work after their hours are up are dealt with after their own ideas. This is how most

gardeners with numbers under them treat their men, and it is generally how amateurs with only one gardener treat him.

In dealing with a number of men their different characters and dispositions are soon apparent, and work should be arranged accordingly. Two or more who are known to be inclined to be talkers should be put together as little as possible. An industrious man and one of the above kind will do better. Men should never be put to do boys' or women's work, if such are kept. The most able-bodied should always be given the heaviest work, and the most experienced should do the particular things. Trying how well and how quick everything can be done is our frequent advice. A thorough interest in all that is done will make everything light and pleasing. Fancy jobs do not need doing daily. Rough work is enjoyable enough if only done in proper weather, which will always be the case if everything is well managed.

In small gardens it often happens that there are one, two, or more old men and women employed through the kindness of the owner. This is very commendable; but when such are not qualified to do a full and reasonable day's work, as is often the case, this fact should be taken into consideration when the gardener's doings are being spoken of. One garden with three young men might be better kept than another with four or five old ones, but it is hardly fair to consider them man for man.

Where there are numbers employed there is generally jealousy, some men thinking that others are getting easier work than they, or are taken more notice of by the heads, and in many cases this may be so, as we can say personally that those men who always try to do most for us are most esteemed and most favoured; but it is simply from their work and actions we judge them and favour them. This is the case generally; so that those who may think they are not getting justice have only themselves to blame for it as a rule. Everyone who has work to do knows too well the advantage of having a person who will do it thoroughly in every sense of the word, to value their services lightly or treat them differently from what they merit.

In conclusion I may just briefly repeat what cannot be too much impressed on the minds of all—that loose ways, inattentions, and every description of irregularities and deceptions, whether they be small or great, all directly detract from good management in all gardens; and those who indulge in them, whether they be master or man, may rest assured that, although they may pass unnoticed and unchecked for a time, they will only lead to their own loss of character, place, and esteem.—
M. M.

ARRANGING PLANTS FOR EFFECT.

OWING to a certain extent to what has been carried out at the metropolitan and provincial shows of late years, a revolution has been effected in the art of arranging plants. The orthodox much crowded, much mixed, and very neat arrangements seem now to be giving way to a lighter, less mixed, and more natural disposition of plants. We get into a certain habit, however; and although we see and read of superior methods it does not always enter into our heads to reform, until perhaps a friend, for friend he or she is, upsets all our preconceived notions of what is best to be done under the circumstances. This was what not so very long since occurred to me. Our conservatory was set out, and, as I thought, the best had been done with the materials at hand. My "eye opener" soon convinced me of our mistake. It was much too flat to please him, especially as the house was tall, being built like so many similar structures, more with regard to external than internal effect. Tall plants we were short of; but says he, "Why don't you elevate the most suitable you have at intervals on flower pots and arrange the others up to and around them?" We did so, making them central plants of groups, thus forming an irregular, higher, and more effective arrangement.

Critics tell us one colour "kills" another, and no doubt they are correct; but if each bright colour is arranged in groups, and these groups divided with the negative white, there is less fear of offending particular tastes, and the general effect is enhanced. That I am not alone in this idea is very evident from the encomiums passed on the conservatory here as lately arranged, and I also find a much-respected neighbouring gardener was in no way overcome by my discovery, having practised it for some time. To further illustrate my argument I will briefly describe the above arrangement, merely adding that we did the best with materials

at hand, and that for the future we intend to grow plants specially for this method of arranging.

The space on which to arrange the plants, considering the height of the house is much limited, the raised beds being divided by wide central paths. A broad band of *Selaginella* is established at the front of the raised borders. On one side next the door a good specimen of *Dracæna ferrea* was stood on a 12-inch pot, and a conical group formed around consisting of rosy pink flowers, such as *Salvia Bethelli*, *Begonia weltoniensis*, also *Pelargoniums* Master Christine and *Amaranth*, these being fringed with small flowering plants of the same coloured *Pelargoniums*. The next was the central group, and this consisted entirely of silver-variegated foliage, white-flowering plants, and Ferns, the central plant being a good specimen well raised of *Pandanus Veitchii* surrounded by white *Chrysanthemums*, *Callas*, *Pelargonium* White Princess, *Begonia semperflorens grandiflora*, *Eupatoriums*, and *Primulas*. The end group had for a central plant a specimen of *Dracæna indivisa*, the remainder of the group consisting of crimson *Celosias*, the free-flowering *Pelargonium* Guillon Mangilli, and small plants of single *Pelargoniums* of the same shade. The spaces between these groups were occupied by Ferns, principally *Adiantums* of sorts, and midway between each principal group a small group of the beautiful blue *Browallia elata* was disposed.

On the other side of the house entrance and in a line with the last-mentioned raised group a similar group was arranged. Next came a group of yellow flowers, such as *Celosias*, *Chrysanthemums*, and *Coronillas* surrounding a raised plant of *Chamaerops humilis*. The end group had for a centre *Yucca aloifolia variegata*, about this being arranged *Salvia splendens* and *Pelargoniums* Wonderful and *Vesuvius*, Ferns being worked around these groups also. The bed opposite to these was sufficiently long to admit of fine groups being arranged. The central group consisted of a tall well-elevated specimen of *Blechnum brasiliense* surrounded by *Celosias*, *Epiphyllum truncatum*, Guillon Mangilli *Pelargoniums*, and red *Primulas*. On each side of this the groups consisted of white-flowering plants, Ferns, and a central erect-growing green *Dracæna*. One outside group had for a centre *Dracæna ferrea*, surrounded by light pink *Pelargonium* Mrs. W. Paul in different sizes and blooming freely, and Reading Pink *Primulas*; the other was composed entirely of free-flowering scarlet *Pelargoniums*, with *Yucca aloifolia variegata* for a centre. Ferns large and small divided the several groups.

It is not necessary to enter into further details, beyond stating how effective a number of *Begonias* of the Rex type and flowering freely were when grouped under a large *Latania borbonica*, and a group of richly coloured *Cinerarias* showed to advantage with a few *Callas*. The white flowers and Ferns form the most attractive groups; *Adiantums* such as *cuneatum*, *formosum*, *concinnum*, and *tenerum* being most suitable for the purpose. A bank recently arranged in a small heated verandah, and consisting of *Centropogon Lucyanus*, scarlet *Pelargoniums*, *Poinsettias*, and tall *Euphorbia jacquiniæflora*, surrounded by *Eupatoriums*, *Callas*, double white *Primulas* and Ferns, is remarkably effective, especially when viewed by lamplight.

The temperature of the conservatory ranges from 50° to 60° by day and 45° to 50° by night, and occasionally still lower, and this and the supplying tepid water seems to maintain floriferousness and health in the various kinds of plants arranged in the structure. —W. IGGULDEN.

IS POTATO CULTURE PROFITABLE?

A FEW weeks ago one of your correspondents complained of the price of Potatoes, and asked if Potatoes could be grown at a profit at 4*d.* per stone, the price at which he was then selling. The Editor replied that it would depend on the crop which could be obtained. The price mentioned, 4*d.* per stone, would work out to £2 13*s.* 4*d.* a ton. This seems an absurdly low price. It is the price at which Potatoes used to be sold wholesale in Scotland nearly thirty years ago, when the expenses of cultivation and rent and taxes were much lower than they have been of late years, and before the losses by disease were so serious.

I have tried growing Potatoes on a large scale, and I do not think I could make them pay at the price mentioned. The cost of cultivation is considerable; and although the rent of land is less, the rates and taxes are still very high, and the cost of labour more than it was twenty years ago. But besides the expense of cultivation there is the outlay in storing and moving the crop, and the cost of carting to the market; and when the price is low the buyer is more particular in the sample and asks for the small tubers to be picked out.

With regard to a large crop, it may be obtained from land in good condition, but I have not been able to get large produce

without a considerable outlay in manure, which of course adds to the expense; but then comes the question, Why does your correspondent sell at 4*d.* per stone? Depend upon it the dealers who give that price do not sell for less than double. If we allow 2*d.* per stone for selling, the seller would make 50 per cent. profit. Why should not the grower take a share of it? I did when I had Potatoes for sale. I found a dealer who sold for me on commission at 2*d.* per peck. If I could not find one I should send someone round myself. In making these remarks I do not wish to discourage the growth of cheap Potatoes. I think the people have reason to expect them at a cheaper rate as long as the Magnum Bonum and other disease-resisting Potatoes hold out, but that the grower should endeavour to lessen the cost of cultivation to meet the reduction in price, and claim a share of the profit when sold to the consumer.—AMATEUR, Cirencester.

AN AMATEUR'S HOLIDAY.

(Continued from page 539.)

WHILE thankful that he is not one "who hath no music in his soul, or is not moved by concourse of sweet sounds," but grateful that he can reap much pleasure from, and even contribute, however indifferently, to the same, the writer confesses his inability so to grasp or adequately to appreciate music of the highest class as can be done by those of greater natural endowments and high scientific musical culture. He is aware that in this, as in the domain of the sister art of painting, there is to him a world of unexplored beauty and unappropriated delight—a *terra incognita* far beyond the confines of which he cannot penetrate. Of the sermon thus far preached the application will be obvious.

Conscious of my inability to do justice to such a subject, with great diffidence I proceed to mention my visit to Castle Kennedy. A "WYLDE SAVAGE" would here have a theme "worthy of his steel" pen or graphic quill. I shall endeavour to avoid inaccuracies, but my visit was too hurried; and writing from unaided memory, I can hardly hope to give your readers any idea of what is certainly the most lovely place I ever saw.

The grounds are open to the public on Wednesday and Saturday. I would in your columns again tender my thanks to Mr. Fowler, to whose frank courtesy it is due that, calling as I did on another day, I was not only granted admission, but that I had through this veritable fairyland the conduct of the presiding genius of the whole.

Castle Kennedy, the seat of the Earl of Stair, is in the parish of Inch, about four miles from Stranraer. It possesses all the essentials of beautiful landscape—hill and valley, wood and water, picturesque ruin and imposing modern mansion. The old castle, the remains of which form a striking feature in the picture, was built about the time of James VI., and was held by the Earls of Cassilis. During the reign of Charles II. it came into the possession of Sir John Dalrymple of Stair, and was burned by accident in 1715. The present splendid mansion, in the Scotch baronial style, occupies a commanding site surrounded by a wide amphitheatre of hills. The extensive grounds are laid out in a series of numerous terraces, and include two lakes, the Black and the White Loch, respectively a mile and a mile and a half long by half a mile in breadth. These are really connected, but seem to be detached, and the castle stands on the westmost peninsula that divides them. The whole demesne has in all details been embraced in one grand comprehensive scheme, including the surrounding hills, which also have been laid out for reciprocal effect. In carrying out this extensive undertaking a hundred hands were engaged for several years, and the minimum staff now consists of thirty gardeners, while upwards of a dozen foresters are in constant employ. It is almost unnecessary to add that only by the division of the men into squads, each having its particular quarter assigned, could it be possible to maintain such neatness and order as obtains everywhere. The slope of one of the terraces has been converted into the semicircular auditorium of an open-air theatre, and here concerts are occasionally held, this being one of the ways in which the temperance movement in the district is laudably encouraged. What a place for a rendering of the "Gloria in Excelsis" or the "Hallelujah Chorus" worthy of the surroundings!

I had often heard and read of Conifers; but as I traversed those spacious glades deeply lined with rare specimens, their dark foliage lit up with the beautiful cones, I felt how insufficiently any attempts at description could convey an idea of the beauty of the scene. Nor had I any idea of the variety of habit and appearance assumed by *Araucarias* till there I saw those deep and long lines, more striking to one who had hitherto seen comparatively little more than isolated specimens. Then *Rhododendrons* by, I should imagine, tens of thousands, the addition of

new varieties worthy of admission swelling the already enormous aggregate. It seemed to me that Mr. Fowler had a special love for these, and he seemed to know most of them, as we say, by headmark. Interspersed were Fuchsias of great size in flower. "Come and see us when the Rhododendrons are in bloom." No greater treat could be more frankly offered, and no thanks more sincerely given. Before I mention a few things more within my humble ken, I may say that the arrangement I have tried to indicate, of walks of great breadth between trees of such sorts as I have mentioned, remains in my memory as a characteristic feature of the grounds.

In the short time I had at command I had to hurry past much well worth observing. But I saw, of course, the well-cropped Vines which had made Mr. Fowler so famous as a grower of Grapes. He has for some years, so far as I have observed—certainly not without ample means to further victories—left to others the field where his laurels were so nobly won. On entering the garden my eye was arrested by two long lines of a yellow Viola that I have not seen surpassed. The lines were of considerable breadth, and the dwarf compact foliage was surmounted by a dense uniform mass of bloom. I found Ageratums a speciality, and was astonished at the number of seedling varieties and the charming effect of their various shades when grouped and blended as they were. The favourite variety Cupid was raised here. One bed, in the flower garden at the castle, of a lilac bordered by one almost white, was extremely chaste and attractive. A slightly greyish tint is to be eliminated from the latter to secure a pure white, and a step is secured towards a crimson or scarlet. But many of the numerous seedlings would please all but a taste so fastidious as to colour and habit. Two plants of Yucca gloriosa in flower were striking objects on one of the terraces. One of these I found to be nearly 9 feet in height. From this plant a limb had accidentally been severed. This had been inserted in the adjoining shrubbery, and was also far advanced in flower. I was much struck with the beauty of the Chrysanthemums in bloom in the garden, and was surprised to learn that these stood out all the year, the severest winters seldom necessitating the filling-up of a gap; but, as Mr. Fowler observed, Castle Kennedy enjoys a climate scarcely to be found elsewhere in Scotland.

But my time—evidently not the patience or the courtesy of my conductor—was rapidly becoming exhausted. As I walked on I turned frequently to glance up those beautiful vistas, and felt that I was leaving a scene such as I fancy Scotland at least has little to match. I have seen much of her beauty and her grandeur—something, too, of her sisters, and a little beyond; but Castle Kennedy is unique in the combination of natural advantage and artificial adornment, and the beauty must be seen to be realised. An apology should almost be offered for giving so meagre a notice; it cannot be called a description. To the visitor of an after generation it may well be said of Mr. Fowler, who has spent thirty-five years at Castle Kennedy, "*Si monumentum queris, circumspice.*"

At the station, which is just beyond the gates, I found a number of beautiful Roses kindly forwarded by Mr. Smith of Stranraer. A friendly wave from the obliging station-master, and I sped on with these towards Glasgow, where on more than one of the tables of one of the public institutions they would be, as my own flowers had frequently been, the objects of an admiration—if covetousness entered who will call it sin?—such as those who have the love for flowers but are denied our opportunities for gratifying it, alone can know.—A NORTHERN AMATEUR.

(To be continued.)

NOTES ON POTATOES.—I see that some of your correspondents, in giving their experiences of Potatoes, speak well of certain varieties while others do not, therefore I should like to give the result of my observations. Early Sandringham is the best cropper of early kinds. I grew Rivers' Royal Ashleaf three or four years ago, when the disease cut down the early ones. More than half the Rivers' were diseased, but the Sandringham was quite free from disease. It is a good cropper, good in quality, and very dwarf in growth. Beauty of Hebron is a great cropper of good quality, quite free from disease, far better than Early Rose, for the tubers of the latter are red all through while the others are not. International is good for exhibition, but has poor flavour and rather close substance. Magnum Bonum about here is better in quality than it used to be; the tubers do not grow so large as they did when the variety was first brought here, that is why I think they are better. Snowflake I am puzzled about. Is it a kidney or a round? However, it is a good Potato, though sometimes it is diseased more than others. Of King Noble and Porter's Exeelsior I have only grown a few this year for the first time; they turned out well and free from disease. Schoolmaster, Mr. Abbey says, is poor and waxy; with me it is not only excellent in quality but a good cropper and quite free from disease, indeed one of the best. Johnston's Downshire is light-coloured, and of a Victoria

type. I planted 3 lbs. and dug 50 lbs. good sound tubers, only three or four diseased, also of good quality. Victoria is an excellent variety and good in quality. Champion I do not like, because when cooked it is hard inside. I know many people who will not plant this variety on that account. The following is my selection—Sandringham, Hammersmith, Beauty of Hebron, Snowflake, Schoolmaster, Johnston's Downshire, and Victoria. Can any reader tell me what are the best varieties for light poor soils?—F. WALKER, *J. of W.*

DINNER-TABLE DECORATION.

THIS is a matter which many take great interest in, and to which they devote much attention. Like all other fashions it needs to be changed to retain admirers. When the numbers at dinner vary and the tables are changed in size accordingly, plants of different size can be worked in, and a change of the plate or chief centrepieces affords the same chance. Alterations of the kind are always favourable to those who decorate, as none of us like to have the table the same night after night before the same company.

As a rule lightness is always appreciated. Plenty of green with a few bright colours is generally most effective. Small glasses are, to our mind, much more pleasing than spreading the decorations on the cloth, and the main pieces should always be done well. Of these we have arranged many, but one of the best we had recently. The stand has a massive silver base some 2 feet wide, and on this stands for figures holding a flower basket over their heads. This basket is about 18 inches across, and is sometimes filled with plants and sometimes with flowers. On the occasion we refer to there was a good plant of Cocos Weddelliana in the centre. A quantity of a small green Selaginella covered the pot of this and filled the basket. As a fringe Adiantum farleyense was used, and white Chinese Primula and Roman Hyacinth spikes were cut and placed, not too closely, over the surface of the green. The effect of this was more pleasing than any centre we have made. The Primroses and Hyacinths looked as if they were growing on the little green mound, and the graceful Palm spreading over the whole made the combination complete.—M. W.

ADNITT'S PEA PROTECTORS.

MR. ADNITT, The Gardens, Sylvia House, Caterham Valley, has submitted to us a cheap, simple, and useful protector. As some such appliance as this cannot fail to be of great service in all gardens, we submit a greatly reduced figure of the article in question (fig. 91), showing the protector, and (fig. 92) a section. These with the following instructions will enable anyone to make these protectors at a trifling cost. "I make them," writes Mr. Adnitt, "of three-quarter-inch boards 4 inches wide and 6 feet long; make the groove, A A (fig. 92), for the glass to slide in, chamfer the top edges of the boards, and nail pieces of sheet iron on the ends, cut the exact width of the frame, with two nails on each side. I nail a

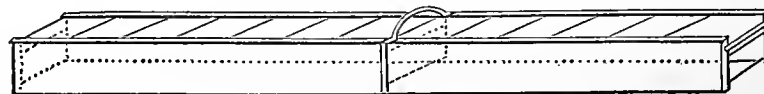


Fig. 91.

piece of wood 1 inch by 2 across the middle of the inside where the dotted lines are. This is feather-edged at the bottom, and prevents the sides from warping. The top of this cross stay is made flush with the underneath side of the glass. A hoop-iron handle three-quarters of an inch wide is secured with half-inch flat-headed nails. One nail an inch long is driven through the top, where it is bent over the wood. I paint the wood with anti-corrosive white paint and black the handles. These protectors have been in use all the year round for four years, and appear as if they will last four more years without painting. I nail a piece of zinc across the ends of some of them to prevent mice from getting in. The glass is cut so as to work freely in the groove, the two end pieces to fit tightly.

"I have found them of the greatest use in protecting and forwarding early Peas. For the last twenty-five years I have tried raising early Peas out of doors, but as yet I have found no plan approaching this. The protectors are very easily moved from one place to another. A man can carry two in each hand (a length of 24 feet). They are easily stowed away if not in use, which is very seldom, and they are very cheaply made.

"The plan I adopt with these protectors is this: I prepare the ground as is usual for Peas; draw straight drills, sprinkle a little fresh lime and soot in them to destroy any slugs that may be

there; sow the Peas so that they shall be all inside the protector, then cover them with soil, and give a good sprinkling of lime and soot on the top. I then place on the protectors, having one at each end that has a stop to prevent mice and birds from entering. No further attention is needed until the Peas reach the glass, with the exception of an occasional search for slugs. But the protector should be firmly pressed into the ground an inch or so to keep out mice and slugs. When the Peas reach the glass the protectors can be easily raised a few inches by placing them on earth drawn to the rows; this can be done from time to time until the cold cutting winds of spring are past. When the protectors are removed the rows are all that could be desired, and the Peas make rapid growth. Those who sow Peas in November will find these the best of protectors, for when sharp weather comes litter, leaves, &c., may be laid over them, and as easily removed without damage to the plants beneath. I find the best size for Peas is 8 inches wide and 4 inches deep. I make them from 6 to 14 inches wide; these larger are used for forwarding such crops as Radishes,

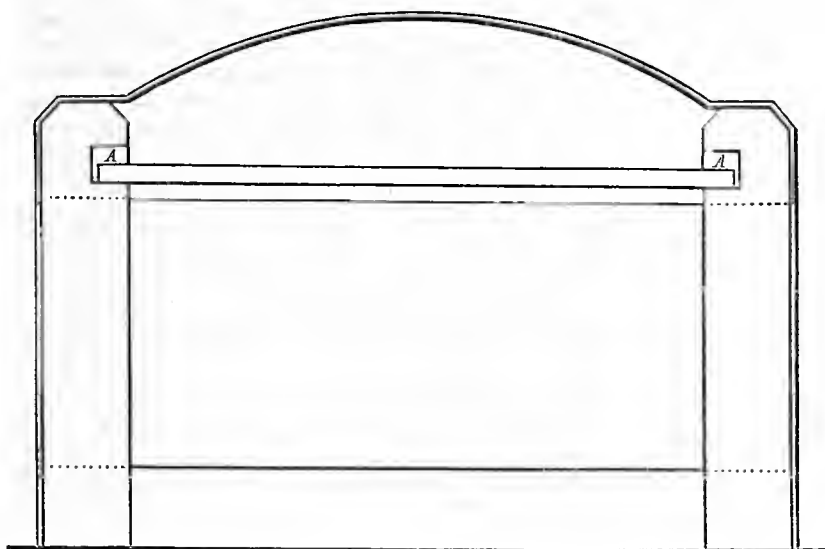


Fig. 92.

small salads, Lettuces, and Horn Carrots which never come too early.

"Many gardeners in this neighbourhood have seen the protectors in use, and all speak highly of them. Gentlemen who delight to attend their own gardens and sow seeds in the morning before going to business, will find them quite safe on their return in the evening if protected in the manner indicated."

Mr. Lumsden and other good gardeners use protectors of this nature and find them of great value, but we have never seen any simpler, cheaper, and more serviceable than those used by Mr. Adnitt; anyone can now make them of the width and depth that may be desired.

MIGRATORY BIRDS—A STRANGE WINTER VISITOR.

ON Saturday the 10th inst. I was very much surprised to see a chiffchaff here anxiously seeking insects among the ice-covered Ivy. It was nearly starved, and could only fly a few yards at a time. It had, no doubt, been lured over by the previous unusual mildness of the season. The earliest I have ever heard or seen one was on the 13th March this year, and the last I heard was on the 30th September last.

If it is not too tedious to read, I will give an instance of the usefulness of this class of birds which came under my own observation. I was sitting in my garden waiting for my bees to swarm, and having a field glass, as usual on such occasions, I turned my attention to an old willow wren which was feeding three young ones in a row on an Apple tree a few yards distance in my orchard. This, as a rule, would be just half the family, and probably the other parent bird had the other half to attend to, to make matters fair. I took out my watch and noticed them for a quarter of an hour, and during that time the single old one fed them exactly eighteen times, on caterpillars chiefly, collected from the surrounding fruit trees. I will not carry out tedious figures to show the vast amount of good effected to rear a single nest of young, and I think I may defy a single charge being lodged against them, unless it is occasionally breaking off a Rose bud in their work of collecting green fly and grubs.

As it appears from the correspondence the Journal circulates through the length and breadth of the land, I for one reader should be glad to see any notes upon the arrivals and departures of our migratory birds in different localities. Last autumn we

had large flocks of redwings and fieldfares, but scarcely any berries for them, consequently the greater portion appeared to perish, as I only saw a straggler or two in the spring, while this year we have abundance of berries and no birds worth naming to eat them. So far I have only seen three fieldfares and very few redwings. Our resident British birds are almost as scarce. A few years ago thousands of starlings might be seen morning and evening going to and fro to their roosting place, now it is a rarity to see one. In consequence of this great change in nature, caterpillars have committed sad havoc both on fruit and timber trees, and during last summer it was no unusual sight to see trees looking as bare of foliage as in the dead of winter. I shall read with pleasure any remarks from others.—J. HAM.

THEORIES IN VINE CULTURE.

(Continued from page 561.)

MR. TAYLOR (page 514) has a very curious theory as regards what determines the character of roots. It is this: If I pinch as he says I ought, my roots will be such as might be "mistaken for those of a Box bush," but if I allow them to get overcrowded they will be "gross roots as large as small quills." Has this been ascertained? If so, it is one of the most singular things I ever heard of, and I will thank Mr. Taylor for particulars.

Another theory is, "that thin foliage which cannot be acted on by the light . . . assists to manufacture crude material which it cannot assist in elaborating." Is this also ascertained? The old idea is that under diffused sunlight leaves act more feebly than under bright sunshine; but that they manufacture a different kind of material which has a special mission, and that mission is the manufacture of fleshy roots, is another new theory—at least to me. Mr. Taylor does not like "cheap science," but only science can clear up such points as are here raised, and I await enlightenment.

My idea is that the character of the border has more to do with the character of the roots than anything else. Nor do I think that the roots of a Vine 20 feet long will differ, except in quality, from one of 10 if both are in similar soil and equally ripened.

Mr. Taylor introduces here the practice of root-pruning, but that need not be here further noticed, as it is away from the point and is not under discussion. As for the fattening of children, unless he beheads them at a certain stage, there is no analogy between growing children and Vines except this, that undue pinching and restriction is good for neither.

I will now refer to Mr. Taylor's letter in your last issue. Your correspondent has the better of me in this controversy, for he "knows what he knows," as Josh Billings would put it, and he also knows what I know, or rather what I do not. At page 561 he says, "It is not known to 'SINGLE-HANDED' that the roots of a healthy Vine continue active long after the leaves have fallen." Not only am I aware of this fact, but his assertion to the contrary, along with another equally unfounded, that I believe in and am an advocate of the "resting-and-drying theory," tempts me to anticipate what I meant to embody in another paper, and refer to a large number of experiments more fully than I can do now; but few as are the words I will use, I think they will sufficiently answer Mr. Taylor.

Several years ago, where I then was situated, the Gooseberries were sadly infested with small mouldy-looking insects. The bushes were not in health, were infested badly with green fly in summer, and next to useless. In the month of November when we were digging the ground I lifted a number of rooted suckers from these bushes and potted them. To see whether the vermin might not be killed and the bushes manured at the same time, one-half of them were watered with cow urine, one-fourth with urine much diluted, and one-fourth had nothing. These were rooted outside for two months, when they were carefully examined. Those that had nothing were dead, and so were those that had the diluted urine. Strange to say those that were soaked with the pure urine were growing, while all the insects were dead. Since then I have potted-up all sorts of roots, including Vines, for the purpose of finding out whether pure urine applied to soil full of roots would do harm. It never did, and I have profited by the knowledge thus gained. So far as I am aware our work in this direction has been original, and when I have made further experiments of the same nature under different circumstances I will give the world any benefit that might be derived from it; at the present I have felt compelled to write somewhat prematurely, and more briefly than I intended, on a subject of such importance.

I manure my Vines and outdoor trees with liquid in winter, and had Mr. Taylor seen me soaking the inside border not more than

a week ago with ice-cold water from melting sleet perhaps he would have grown happy over my mistake, as did two smart neighbours who called when I was so engaged; but if I had told him, as I did not tell them, that I was sure (from experiments I had conducted for years that my Vine roots inside were extending themselves at the expense of the rods, owing to the too high temperature of the Vine borders), that a lowering of border heat in winter was as necessary as the lowering of the temperature above, he might have written the article in question, but would have been obliged to attribute the false opinion in it to someone else. But this is anticipating what I have to say on "how, when, and why" I manure my Vines.

I had intended answering what has been written by Mr. Iggulden and "AN OLD GROWER," but Mr. Taylor's second letter intervened; perhaps the two cultivators referred to will find their remarks answered during the progress of this discussion even if they are not personally alluded to. The question at issue is not one of names, but of principles. Possibly as they read further one of the contributors may find there is such a thing as founding an argument on false premises, and the other may have a suspicion that assumption may be mistaken for fact.—SINGLE-HANDED.

PRIMULAS IN SMALL POTS.

I COULD not help thinking, when reading "M.'s" notes on Primulas in small pots, which appeared in the Journal of the 15th inst., that however commendable may be the practice of making a 3-inch pot a final receptacle for a Primula to those who have few larger pots and but little room, the general trial he solicits of that system would end in a very general and speedy return to former paths of culture.

I am far from denying that some excellent results may accrue from blooming Primulas in such pots, but when I read that within those circumscribed limits better blooms and larger trusses are obtained than by devoting to them pots of twice the diameter, it appears to me that some mistake has been made. Indeed my experience of Primula-growing convinces me that such is not the case.

I had this summer, like "M.," a batch of well-rooted plants in 3-inch pots, which, being ready, instead of engulfing them at once in 6-inch pots, I chose the more gradual process of transferring them to pots of an intermediate size, in which a few weeks sufficed to fill the soil with roots. I then proceeded to give them their final shift into 6-inch pots, taking care to drain these well, and shaking some light rich soil round the balls until the pots were sufficiently filled. I then gently settled the whole, and placed them on the shelves of a warm greenhouse, where they have grown luxuriantly. Fine sturdy plants they are now, studded with crowns, from the centre of which spring huge trusses laden with fine blooms about the size of an old-fashioned penny, and the soil in the pots threaded through and through with white ramified roots, which, peeping from the surface, appeal as eloquently as ever did toper for "something short in their liquor."—AN OLD PRIMULA GROWER.

LEEKs IN WALES.

I HAVE read the remarks by "A. H. H." on page 533. By him Leek culture is represented to be most complicated and not well understood, but it will certainly not be his fault if this continues. He is under the impression that in Wales Leek culture is unsatisfactory. Will he state distinctly where he learned this? I can say Leeks are as common in Wales as they are in any county in Scotland, and their culture, as a rule, is on a par in both parts.

To grow Leeks under the directions on the page quoted a man would need to have a supply of handglasses, cold frames, and hot-beds. He must also sow seed in pots, place these in stove heat, pot singly in 3-inch pots, shift the plants into 6-inch pots, harden them off, and so on; planting out 2 feet each way, and watering with sulphate of ammonia. These are instructions which I call superfluous, and I am sure the majority of Leek-growers throughout the country will say the same. An "Onion head" is said to be the "best part" of the Leek, but it, too, is "objectionable." All "A. H. H.'s" teachings prove that he wants us to grow one batch of fine Leeks for show, and another inferior one for the table, and this is a course I wish to discountenance.

Size is evidently the first and only consideration with your correspondent. It is a pity he did not give the weight of what he considered a good and perfect Leek, and say if moderately strong soundly grown examples are not as acceptable and well flavoured as those grown in a stove and forced as described.

Anyone wishing to grow what may be termed excellent Leeks for the table from November until May, will secure them if seed

is sown on rich ground at the same time as the spring Onions. In fact, they require no more attention than the Onions except in earthing up.—J. JONES.

TORTOISES IN GARDENS.

FROM a barrow in the London streets I purchased some two or three months since a tortoise, which the bill exhibited by the vendor informed me was of African extraction, and "good for killing all manner of garden insects." I conveyed my tortoise home, and ensconced him in my garden, which, being surrounded by a brick wall, ensured the tortoise's safe custody. Since then I have watched the horny gentleman on many occasions, but I have never seen him kill or devour insects. During the summer he confined his attentions principally to young Lettuces and Clover, of which latter edible he appeared extremely fond, and conscientiously nibbled every bloom to be found on the lawn. To all appearances he has enjoyed life up to the present time in a leisurely manner, burrowing in cold or wet weather beneath the Rhododendrons in a peat bed, and apparently contented excepting in frosty times, when he appears to become perfectly torpid and remains immovable for several days. Can you inform me whether I ought to remove him from the garden during the winter and give him a corner by the kitchen fire, or otherwise protect him from the frosts and rains of our climate? And if so, what I ought to feed him on until the warmth of spring will enable him once more to pick up a living in the garden?—TESTUDO.

[The reply we gave to a correspondent early in January last appears applicable in this case:—"There are a great number of species, most of which are natives of warm regions of the globe; but those that live in colder climates burrow and sleep during the winter. They are quiet inoffensive animals, extremely tenacious of life, and remarkable for longevity. Individuals are stated upon good authority to have lived upwards of two hundred years! The common tortoise, or *tartaruga*, *Testuda græca*, is a native of the south of Europe, and almost all the countries bordering on the Mediterranean. It is found in the islands of the Archipelago, Corsica, Sardinia, and in Africa, and is thought to be more common in Greece than elsewhere. It is from 6 to 8 inches long, and weighs about 48 ozs. This species is often brought to this country, and kept in gardens. One was brought to the archiepiscopal garden at Lambeth, in the time of Laud, in 1633, where it lived till 1753, owing its death more to neglect than the effect of age. You had better place your pet in the greenhouse, or other suitable place, and supply it with food. They live mostly on vegetables, but will eat almost anything, including bread soaked in milk."]

SECKLE PEAR.

"E. L. O." asks "Where did 'WILTSHIRE RECTOR' obtain the sample of this Pear which was so very small and of a vulgar sweet taste?" I reply that I had that sample, many dozens indeed, from a tree in my own garden, which tree I had from Messrs. Smith & Co. of Worcester, and also others from a large espalier near me. I have known the Pear for years, and was some time before I made up my mind to denounce it. I live in a grand fruit country, being less than a dozen miles from Bath. I ask, Why grow such a small Pear of what I consider a vulgar sweet taste, fit only for a huckster's shop, when you can grow a large, handsome, and magnificently flavoured one, such as *Beurré Hardy*, ripening at the same time? I think if we are to compete with importers of fruit it is by only growing the best, and not allowing our gardens to be crowded with, or even to have any, inferior varieties in them. I am daily having at dessert the old Golden Pippin and Cox's Orange Pippin. But how inferior the former is to the latter! It might have been the best Apple in its day, but that day is over. Just so, too, of Juneating and Irish Peach. Why grow the former when you can the latter? We need to clear our minds of old fancies and preferences, and see what is the best, and grow only the best. When at Worcester I saw perfect battalions of Dumelow's Seedlings and Lord Suffields, while only thin ranks of older and now proved to be less valuable sorts of Apples. I say, Choose carefully the best, and gradually advance new claimants to the first rank as they deserve it, but away with the second-rate sorts. I only know of two small Pears that are indispensable—Winter Nelis and Monarch, and the latter is not very small.—WILTSHIRE RECTOR.

CHRYSANTHEMUM SPORTS.—Remembering that some of the best show Chrysanthemums we have were originally obtained as sports—for instance, Mr. George Glenney and Mrs. Dixon, from Mrs. George Rundle, the following extract from a letter just received with a box of blooms from a lady in Sligo may be of interest—"I enclose you

a curiosity—pure white, and bright pink blooms from the same specimen *Chrysanthemum*, Miss Mary Morgan, or, as it is sometimes called, Pink Perfection. Three stems bloomed early, and produced blooms similar to the pure white; while later on two other stems gave blooms of the correct "Pink Perfection" type, as they have hitherto done. I cannot think of any reason for this except to consider it a sport, which it will be of interest, if I can fix permanently, as it is deserving of being perpetuated."—W. J. M., *Clonmel*.

THE DIAMOND TUBEROSE.

THE accompanying woodcut is a reproduction of an engraving published in the "American Gardeners' Monthly" for December,



Fig. 93.—Tuberose The Diamond.

1881, and portrays a plant of most remarkable character, and if faithfully shown one that will prove of such value, that it deserves the attention of our readers. It is, we understand, one of the novelties sent out by Messrs. Nanz & Neuner, who, it will be remembered, sent out the double *Bouvardia* a short time since,

and which has proved fully equal to the descriptions given of it. We may, therefore, expect the Diamond Tuberose to maintain the credit of the firm, and to be a plant of real decorative value. The very dwarf habit is the most remarkable character of the variety, and it is stated the plants "grow from 5 to 8 inches high and yet produce as many flowers as the ordinary kind." For culture in pots it is, therefore, extremely well suited, and no doubt we shall soon see it in cultivation in Great Britain.

EARLY POTATOES IN POTS.

DURING many Decembers we were in the habit of making up long hotheds of leaves and manure on which to grow our new Potatoes for Easter and Whitsuntide. When the weather all through was fairly mild and good a satisfactory crop which amply paid for labour was generally secured, but in bad springs the opposite to this was the rule. If the frames had to be kept covered for days, and sometimes weeks together, owing to severe frost, when exposed again the young shoots were generally white and weak, and after this the crop was never abundant. In wet weather the manure and the frames were full of moisture, and the young growths not unfrequently decayed at the surface of the soil.

Taking one season with another, we came to the conclusion that to grow early Potatoes on dung beds was not profitable, and often disappointing. At last we thought of growing all early Potatoes in flower pots, and these we have found answer the purpose much better than the frame; 10-inch pots are the best, a hundred of these will give many dishes of fine early Potatoes, and when properly managed there is no risk with them. A crop may be relied on at all times with no more trouble nor expense than was required with the beds and frames. A quantity of roughish loamy soil should be collected, and a little decayed manure mixed with it. Each pot must have a little rough drainage placed at the bottom, and afterwards be half filled with the prepared soil. This should be made level and firm, and the sets can then be placed on it. Two, three, or four sets may be placed in each, keeping them as far apart as possible, and afterwards covering to the depth of 2 inches or more with the soil.

A cool house or frame protected from frost are suitable places for the pots at first, as with a little water the sets will soon produce growth above the soil; and the cooler and nearer the glass the plants are kept at this period the more robust will they remain, and this is a great point gained. Later on they are placed in early vineries or Peach houses, and there the tubers form plentifully and swell quickly. As the weather becomes warmer, about the end of March and beginning of April, they may be placed in frames with the lights over them.

Where there is no room to grow many a few dishes may be had from one or two dozen pots, and when they are turned out I feel sure all will be satisfied with this easy and certain mode of securing early Potatoes.—A KITCHEN GARDENER.

THE CHRYSANTHEMUM.

(Continued from page 466.)

IT may be truly said that there should be three main objects kept in view in growing the *Chrysanthemum*—viz., specimen plants, blooms for exhibition, and plants provided for conservatory decoration only. Specimens are plants trained in globular form from 2 to 5 feet or more in diameter, with the flowers regulated with precision and kept in position with delicate supports. Blooms for exhibition are obtained from untrained plants, and the size and substance of the flower take precedence over quantity or the beauty of the plant. The skill and judgment of the cultivator is here severely exercised in disbudding. A display for conservatory decoration may easily be obtained by growing the plants untrained as for cut blooms, but allowing them to carry as many clusters of flowers as possible. This plan may also be termed a slovenly one, as, grown under the second method, plants are equally as useful for the conservatory, and, indeed, the finer the quality of the flower the more effective must be the display; but, whatever object the cultivator has in view at starting, it is first necessary he should commence with

Propagation.—Cuttings should be taken from around the base of the plant as early as possible after the plants have bloomed. Insert three or four cuttings in each 60-pot, employing a light soil and silver sand; place the pots on a bed of ashes in a cold frame, protecting them from frost by covering with mats. Although most successful cultivators prefer the earliest cuttings, they may be taken during January and February with equal success; but if taken very late it is a good plan to place them in moderate heat,

but cuttings struck in heat are by no means so sturdy as those that are placed earlier in a cold frame.

Potting.—When the cuttings are well rooted—which, if inserted at once, will be about February—they will require potting singly, still using light soil, and return them to a cold frame as before, placing the tallest at the back of the frame and the shortest in the front, drawing the lights off on all fine mild days to keep the plants dwarf and sturdy. About April the plants will be benefited by another shift, this time into 6-inch pots, or 32's, using more loam in the soil than in the first potting, returning them again to the frames until all fear of frost is past, when they may be placed out in an open space to await their final potting about the middle or end of June. For untrained large-flowering plants to supply flowers for cutting for exhibition a 16-size pot, or 9 inches in diameter, is very suitable; specimens may require a larger size, according to the strength of the plant. Pompons will thrive and bloom freely in a 24 or 8-inch pot; indeed, some may be successfully grown even in smaller pots, and will be found useful. Employ a compost of two parts good yellow loam, one part of well-decomposed manure, and sufficient sharp sand or road grit to make the whole porous; a little bone dust or pounded oyster shells will be found a valuable addition. Efficiently drain the pots, and place a layer of the roughest portion of the compost over the potsherds before filling in the soil. Pot firmly.

Stopping.—Some cultivators like to stop the growth of their plants once about the time they give them their first shift, and doubtless good flowers may be produced in this way, but as yet I have failed to see that they produce finer flowers than from plants that have never been pinched at all. An advantage can be gained in the height of the plant, and for a home display, or for the arrangement of groups, plants that have had the leading point of the shoots taken out at the time of the first shift have a decided advantage on account of their sturdiness; but if large flowers only are desired my advice is, Never pinch. If specimen plants are required select the strongest plants at first, and commence to lay the foundation of the plant by early stopping it, and at intervals afterwards take out the extreme points of the longest shoots until the last week in June, or at the latest the first week in July.

Training, Staking, and Watering.—As soon as the plants are transferred into 32-sized pots a small willow or other light stake should be placed to them in the case of single stems to prevent them being blown off by the wind, and for specimens each branch should receive the support of a neat stick of sufficient length to answer the required purpose. When the plants are fully grown great taste and regularity are needed in tying out so that the training is not made offensive to the eye, like the flat specimens often met with at exhibitions; the growths twisted and distorted so as to destroy all beauty. When the untrained plants have received their final potting they will require a stronger stake, which will also in time require to be secured to a horizontal wire or stout string to prevent the plants being blown about. The gales at the end of September are generally very destructive to Chrysanthemums unless they are well secured, for it is very easy in these gales to lose the whole of a season's efforts. Chrysanthemums require water frequently, especially if the plants are arranged along the edges of a hot garden walk or in an open position, for it is not considered a wise plan to plunge the pots, more especially if the plants are left to root through, which will check them and prove injurious to the flowers. On hot days it is a good plan to damp the foliage well. Clear water will suffice for them until the end of August, when most of them will be disbudded and the flower buds formed, then they will stand in need of something more stimulating than clear water. Clay's and Standen's manure are very good and easily applied. The former manure is now generally used for softwooded plants, and I have frequently heard successful prizetakers of Chrysanthemums say that they believe their success has been mainly due to the use of Clay's fertiliser. Guano and sulphate of ammonia are also good, but must be used cautiously. My own choice has been the diluted drainings of farmyard manure and soot water, supplying it frequently and weak, with a few supplies of guano or patent manure during the time the buds are swelling.

Disbudding.—About the middle of July it will be observed that the plants when grown in a natural manner have only one straight shoot, at the extreme point of which a flower bud will appear. It is not this bud that must be retained, but from just below this flower bud there are four leaf buds, which will commence swelling; and in the course of a month, if the plants are in a healthy condition, these three or four breaks will each have a flower bud, and then disbudding must be resorted to if large flowers are required—merely leaving the centre bud and pinching away the other shoots below, which if left would again throw out other growths and

flowers, but these flowers would be found both late and small, and therefore useless for exhibition.

Housing.—Any dry and open greenhouse is a suitable place for housing the plants. Usually about the first week in October is a good time. Early frosts are scarcely then sufficiently sharp to do much damage to the advanced buds, but if there is a prospect of frost house them at once, as all the lower petals will be so damaged as frequently to cause the calyx to decay also. I had some plants that were out in two sharp frosts in the early part of October this year, and they suffered considerably. Two plants—Miss Mary Morgan and Jardin des Plantes—were killed, while my friend Mr. Jordan told me that he lost grandiflora and one or two others in the same way. A Peach house is well adapted for aiding the further development of the flowers. No one would scarcely credit the difference it makes between good flowers and bad in housing plants in a light, open, and well-ventilated glass structure, and lofty dark and gloomy conservatories. Here again, it is not a wise plan to stand them too thickly, and if a little heat can be applied on damp foggy days it is a great advantage.

Insects.—At all stages of their growth the Chrysanthemum is very liable to the attacks of green fly, which infest the extreme points of the young growths. In the case of young plants it is a good plan to dip the points in tobacco water, but with larger established plants a dusting of tobacco powder after rain or heavy dews should be tried. This can easily be washed off after a day or two. Earwigs are also destructive generally at night, damaging the foliage, but more frequently the flower buds and growing points. Pieces of Broad Bean stalk or small rolls of paper placed between the stem and the stalk will frequently entrap them, when they can be blown out in the morning and destroyed. Notes on dressing the flowers and a selection of the best varieties in each section will be given next week.—J. W. MOORMAN.



WE are informed that the date of the Exhibition of the REIGATE ROSE ASSOCIATION has been fixed for Saturday, 1st of July, 1882, and that an attractive schedule of prizes will be duly announced.

— THE HORTICULTURAL EXHIBITIONS at the Royal Botanical Gardens, Manchester, Mr. Bruce Findlay informs us, will be held in 1882 on the following dates:—14th March, 4th April, 2nd May, at the Town Hall. The National Horticultural Exhibition opens at the Gardens 26th of May; Rose Show, 14th and 15th of July; Show of Gooseberries and Dinner-table Decorations, 7th of August; Cottagers' Show, 8th and 9th of September; and the Chrysanthemum Show at the Town Hall, 21st of November.

— PROBABLY it is not generally known that the COLLECTION OF FERNS AT KEW includes more than eight hundred species and varieties, excluding the numerous forms of British Ferns and many doubtful ones amongst exotics. This is one of the finest representative collections of the great Fern family in the world, and it is surprising how so many plants from such widely different situations and climates can be maintained in satisfactory condition. Even those pretty but fastidious genera the Cheilanthes, Notholaenas, and Pellaeas appear to be improving, though the two former are rarely seen thoroughly healthy. Further accommodation might be advantageously supplied to the Fern collection at this establishment, for neither of the houses open to the public are constructed in the best possible manner.

— THE plants of Messrs. J. Carter & Co.'s "BLUE PRIMULA HOLBORN GEM," shown at the last meeting of the Royal Horticultural Society, were in better condition than they have previously been exhibited, being dwarf and compact in habit with neat trusses of flowers. The very distinct tint marking this variety could not, however, be seen to the best advantage owing to the

partial darkness prevailing at the time ; but it was apparent that the bluish colour is being improved and deepened. The ultimate result if this progress be continued will, no doubt, be a very distinct race of Chinese Primulas.

—WE recently announced that it was intended to make a PRESENTATION TO MR. E. S. DODWELL on the occasion of his removal from the neighbourhood of London in consequence of his failing health. The Committee then formed with that intention obtained subscriptions to the amount of £108 6s. 6d., which enabled them, after deducting £3 6s. 6d. for expenses, to present Mr. Dodwell with a cheque for a hundred guineas.

—PART 3 of ICONOGRAPHY OF INDIAN AZALEAS, which we have received from M. Auguste Van Geert, contains coloured plates of Mdlle. Louisa de Kerehove, Camille Vervaene, and Roseo Pieta, the last a very attractive variety with large well-formed flowers, white prettily streaked and dotted with bright rose. It is of German origin, said to have been obtained by M. Schultz from seed. The colouring of the flowers in each case is good, but the foliage has a rather unsatisfactory tint.

—A PRIMULA GROWER writes as follows upon SUPPLYING WATER TO PRIMULAS—"I find it very difficult to induce my young men to give proper attention to watering these plants, and as I grow a large number carelessness in this respect leads to rather serious results. With many plants the chief danger to which they are liable is a too liberal supply of water ; but in the case of my Primulas it is the opposite, for I believe they more frequently suffer from the soil being dry than from excess in the other direction. The leaves of an apparently healthy plant will be seen to be drooping quite suddenly and unexpectedly ; it then in all probability receives a thorough watering, and the consequence is that when subsequently turned out of the pot and examined the soil is found to be completely saturated and the roots apparently decayed. Now I consider that the roots are destroyed by the soil becoming too dry, and an application of water is then too late to enable the plant to recover. The rule I endeavour to enforce is that plants should be watered every morning when the soil is at all dry, and at this time of year at least once a week give them a thorough watering—that is, first select those which are dry, and then give them all an equal supply."

—AMONG the papers read at the last meeting of the METEOROLOGICAL SOCIETY was one on the "Rainfall of Cherrapunji," by Professor J. Eliot, M.A., F.M.S. Cherrapunji is notorious for its excessive rainfall, larger in amount, it is believed, than at any other place, so far as is known. Cherrapunji is a small Indian station, situated in the south-west of Assam on a small plateau forming the summit of one of the spurs of the Khasia hills. These hills rise on the south with exceeding abruptness, and have the Bengal plains and lowlands at their base. Cherrapunji stands on the summit of one of these hills at an elevation of about 4100 feet. The hill on which it is situated rises precipitously from the lowlands of Cachar and Sylhet, which are barely 100 feet above sea level. During the S.W. monsoon the lower atmospheric current advancing across the coast of Bengal has a direction varying between S.S.W. and S.E. in lower and central Bengal. In thus advancing almost directly towards the hills of western Assam the mountain ranges cause a very considerable deflection of the current. One portion is forced upwards as an ascending current with a velocity directly dependant upon the strength of the current in the rear, and upon other conditions which need not be enumerated. The rapid diminution of temperature which accompanies expansion due to ascensional movement of air is usually followed by rapid condensation in the case of a moist current, such as the S.W. monsoon current. The normal annual rainfall in Cachar and in the plains of northern Bengal is about 100 inches.

The average annual rainfall of Cherrapunji is 493 inches, that is 393 inches in excess of that at the foot of hills on which it is situated. The rainfall of Cherrapunji is not due to any abnormal local conditions of atmospheric pressure, air movement, &c., but simply and solely owing to the presence of a vast mechanical obstruction, which converts horizontal air motion into vertical air motion.

—A WRITER in "The Gardener" gives the following note upon a little-known plant:—"Of neat and pretty little trailing plants for a window or cool greenhouse I have one now in my mind's eye (and, thanks to Mr. Moore of Glasnevin Gardens, in the greenhouse also), and that is of all things to be desired. I allude to the 'BLUE-FLOWERED SHAMROCK' (anent which English name I am confident, having had it direct from the maker thereof), or as it is known of the botanist, PAROCHÆTUS COMMUNIS. For the benefit of those who do not know the plant under either of the above names I will liken it in habit to a plant of white Clover, also supposing that instead of the bossy heads of many white flowers only one bloom is produced at each axil of the creeping stem, and that one blossom of the size and colour of that of the 'Chick Pea' or Chickling Vetch, yecept Lathyrus sativus in Latin, as opposed to the vulgar tongue. Now small blue Sweet Pea-like flowers, borne on slender stalks 2 or 3 inches high above a Clover-like tuft of Trefoil leaves, is, as I take it, a great if somewhat old-fashioned rarity, and as such I hereby most heartily commend it to all who care for plants of interest apart from bold colour effects."

—WE learn that Mr. G. Bailey, late foreman at Trentham, succeeds Mr. Dell as gardener at Wyfold Court, Henley-on-Thames. Mr. J. Ellicott, late foreman at Syon, succeeds Mr. Harris as gardener to H. Tugwell, Esq., Crowe Hall, Bath.

—WE are informed that the following SPECIAL PRIZES will be offered by MESSRS CARTER & Co., Seedsmen, High Holborn, London, at the various meetings of the Royal Horticultural Society during next season—At the great summer Show, May 23rd, for the best fruit of Carter's Blenheim Orange Melon—first prize, £2 2s.; second prize, £1 10s.; third prize, 15s.; fourth prize, 10s. 6d.; fifth prize, 7s. 6d. At the Pelargonium Society's Show, June 27th, for the best four dishes of the following Peas (fifty pods each)—Carter's Stratagem Pea, Carter's Telephone Pea, Carter's Pride of the Market Pea, Telegraph Pea—first prize, £5; second prize, £3; third prize, £2; fourth prize, £1; fifth prize, 10s. 6d. At the Show of the Association, August 3rd, of British Bee-keepers, for the six pots of Tomatoes as follows—Carter's Golden Drop, Carter's Grapeshot, Carter's Red Currant, Carter's Dedham Favourite, Carter's Greengage, Carter's Holborn Ruby. At the winter meeting, December 12th, for the best twelve dishes of vegetables, to comprise twelve Onions, Golden Queen; twelve Onions, Silver Ball; twelve Onions, Golden Globe; twelve Turnips in variety; three Cauliflowers, three Celery, fifty Brussels Sprouts, twelve Potatoes, six Carrots, six Parsnips, three Red Beet, six Leeks. First prize, £5; second prize, £3; third prize, £1 10s.; fourth prize, £1; fifth prize, 10s.; sixth prize, 7s. 6d.

—A CORRESPONDENT sends the following respecting DAMAGE TO FRUIT TREES AND OTHER CROPS BY SMOKE—"At the Sunderland County Court on Friday 16th inst., before Mr. Meynell, the County Court Judge, and a special Jury, Messrs. R. Gibson & Sons, market gardeners and nurserymen, sued Messrs. J. G. Kirkby & Co., brickmakers, for damages to their crops, alleged to have been sustained by the fumes and smoke of defendants' brick kilns in Tunstall Lane, Sunderland. Mr. Strachan, barrister-at-law, instructed by Mr. W. M. Skinner, solicitor, was for the plaintiffs, and Mr. Atherley Jones, barrister-at-law,

instructed by Mr. Bowey, solicitor, appeared for the defendants. Mr. R. Gilson, A. Balfour, nurserymen of Newcastle, Mr. Crament, gardener to Mrs. Backhouse, Ashburne, Sunderland, and other witnesses spoke as to the injurious nature of the smoke coming from the defendants' works; and Mr. Balfour estimated the damages done to the complainants' fruit trees and other crops at £35. Mr. J. Thompson, nurserymen of Newcastle (principal of the firm of Thompson & Son, Ravenside), and Mr. P. Ferguson of Merc Knolls, Monk Wearmouth, both attributed the unhealthy state of complainants' fruit trees to the presence of red spider, and the loss of the Onions to the attacks of the Onion fly. Both witnesses also spoke as to the unusual severity of the late frosts, particularly in early June, when the destruction of early vegetables was general in the county of Durham. Both witnesses were also agreed that the slight damage sustained by the complainants' trees was ascribable as much to adverse weather and the close contiguity to the town as to the fumes of defendants' brickworks. In summing up the Judge said that there could be no doubt that wherever manufacturing of this sort went on vegetation generally was sure to suffer. The Jury found for complainant for £30. The case attracted considerable attention in the neighbourhood, there being many gentlemen's gardens round the district where the brickworks are."

PEAR NOUVELLE FULVIE.

LIKE the Pear we submitted last week, this variety receives little attention in the current literature pertaining to a fruit on which so much, yet not too much, is written, for the Pear is beyond question the most important of all hardy dessert fruits. Although Nouvelle Fulvie is not one of the most handsome of Pears, it is nevertheless one of the best of its season. The fruit is usually ripe in January and February, and is of delicious quality. Like most other late Pears the trees need the shelter of walls, and it is only in the southern counties that satisfactory fruit is produced on trees in the open garden. A Pear of such excellence is worthy of a place amongst late Pears, and hence we give it more prominence than it has hitherto received. The following is a description of this good Pear—Fruit medium-sized, pyriform. Skin green, changing to yellow, and thickly dotted all over with russet; when fully exposed and in a warm climate it has a red crimson cheek, which is bright when the fruit is at maturity. Eye half open, with dry horny segments, rather deeply set. Stalk about three-quarters of an inch long, occasionally fleshy, and united to the fruit by some fleshy folds. Flesh fine-grained, melting, very juicy, with a rich and exquisite flavour. It was raised by M. Grégoire, of Jodoigne in Belgium, in 1854, and named by him after one of the members of his family. Our figure on p. 587 represents a very fine specimen of this Pear.

CHRISTMAS AT CHELSEA.

It matters little what month the visitor may choose for a journey to the world-famed nurseries of Messrs. J. Veitch & Sons, Chelsea, he always finds abundance to interest him. However dull or cold the weather be, the numerous houses are thronged with handsome plants, forming a series of exhibitions of the most select and beautiful character. Winter has no dullness there. Perhaps the superb collections of Orchids are not quite so strongly attractive as at other seasons, when they constitute such a grand feature in the nursery; but even in December they contribute in no mean degree to the general effect, and many other plants scarcely less choice or showy amply supply whatever deficiency may be observed in that class. Few indeed but those who well know the resources of the establishment would think it possible so much of interest and beauty could be provided in a nursery in the third week of December; but winter-flowering plants have in recent years received so much attention, so many new introductions are annually sent into commerce, and such care is given to the selection of varieties in certain classes of plants to prolong their particular season, that we shall soon have at command as great a diversity of floral beauty at this season as at any other period of the year. Indeed, some of Messrs. Veitch's most recent and most useful novelties are plants specially adapted for winter decoration, among which it is only necessary to mention *Jasminum gracillimum* and *Begonia socatrana* as examples, each of which will undoubtedly take a place amongst the most popular plants in cultivation; but the following

notes, though necessarily brief, will give some idea of what were specially attractive in these nurseries at Christmas, and they will also indicate how easy it now is to render cool or warm houses gay in no mean degree at what is considered to be horticulturally one of the duller periods of the year.

ORCHIDS.—Though there was not the abundance of flowers which will render the houses devoted to these plants so brilliant a month or two hence, yet, as might be expected, in such a rich, diversified, and well-grown collection there was much that was noteworthy. Greatly improved varieties of well-known species, beautiful hybrids, new introductions and rarities, provided plenty of interest for the increasing number of Orchid lovers and growers. Foremost amongst the novelties was *Calanthe bella*, a very beautiful hybrid, the result of a cross between *C. vestita* and *C. Turneri*. It is quite distinct from both parents, being extremely vigorous, producing a very long spike, frequently 3 feet in length, the flowers being arranged on the upper half. One very remarkable quality is the great size of the flowers. The sepals and petals are broad, white tinged with rose; the lip is particularly large, of a similar hue, but having in the centre a rich crimson blotch, which imparts a great attraction to the flowers. The outline is very even, and there is a general appearance of great substance. The Floral Committee of the Royal Horticultural Society recently signified their appreciation of its merits by awarding it a first-class certificate. Another handsome *Calanthe* is *C. Sedeni*, with pink flowers and a deep rose blotch in the centre, while the several varieties of the useful *C. vestita* and the valuable *C. Veitchii* were still attractive. The last-named scarcely needs a word of praise; it is now so well known and is so thoroughly appreciated that it has become almost indispensable wherever Orchids are valued.

Cypripediums have received much attention at Chelsea, and many beautiful hybrids have been obtained, which, together with the numerous species and their varieties now grown, constitute a collection of great value and interest. At this time of year the old but useful *C. insigne* is in its best condition, and when represented by some of the best varieties, such as *C. insigne Maulei*, which was there in excellent form, it is one of the best of the genus for general culture. One unnamed variety had surprisingly large flowers, the white margin of the dorsal sepal being broad and pure, and the lip was also of good colour. The very distinct and pretty *C. Sedeni* with its rose-tinted flowers was noteworthy, as were also the following—*C. euryandrum* [*C. barbatum* × *C. Stonei*], a handsome form with imposing flowers; the dorsal sepal broad and streaked; the petals long, slightly hairy at the margin, and darkly spotted. The lip is suggestive of *C. barbatum*, but usually surpasses it in size. *C. selligerum* [*C. barbatum* × *C. laevigatum*], is also a distinct form with large flowers; the dorsal sepal broad, white with dark streaks; the petals are long, moderately broad, faintly streaked with crimson, spotted with a darker shade, and slightly hairy. *C. vexillarium* [*C. barbatum* × *C. Fairrieanum*], one of Mr. Dominy's raising, was very attractive, its fine flowers and dwarf habit rendering it a fine addition to the garden form. The dorsal sepal is purple streaked on a whitish ground, the petals broad, and the lip neat in outline, and resembling the pollen parent. *C. cenanthum* [*C. insigne Maulei* × *C. Harrisianum*], though not bearing such large flowers as some of the others already mentioned, this is a very beautiful form, and when seen in a good light is particularly striking owing to the peculiar glossiness of the blooms. The dorsal sepal is about 1½ inch in diameter, nearly circular in outline, the greater portion being thickly spotted with shining deep claret purple, running into streaks near the centre, a narrow but evenly defined margin of white relieving the darker centre. The sepals are nearly 2½ inches long, about half an inch broad, with a slightly undulated margin, the glossy purplish hue being evenly spread with the exception of a few spots near the base; the lip is small but neat, and of similar colour to the petals though rather brighter. Several others were also flowering, *C. pycnopterum*, and *C. Harrisianum* being the most noteworthy, the former a distinct hybrid, and the latter an older but beautiful form of hybrid origin.

Odontoglossums are grown in thousands, and several of the advance guard were already flowering. One very fine variety of *O. Alexandræ* had seventeen flowers of excellent form in a spike. *O. Halli* was represented by a superbly coloured variety. *O. odoratum* was flowering freely. *O. tripudians*, a comparatively recent acquisition, with neat bright brown-barred flowers, the diminutive but pretty *O. blandum*, the magnificent *O. triumphans*, and *O. limbatum* with others were all flowering well. *Phalænopsis* of all the best species and varieties were showing an abundance of flower spikes, but recent fogs have done them much mischief, though, doubtless, they will as usual produce a fine display later on. *Cattleyas* also give great promise, innumerable sheaths being

produced. Many other Orchids were flowering, but sufficient have been enumerated to indicate the chief attractions in that department.

PITCHER PLANTS.—It is within the memory of many when *Nepenthes* were represented in very few British gardens; indeed until quite recent years they have been regarded as so extremely difficult of culture that they could be only included in those collections where houses could be specially devoted to them, but it is now becoming known that many can be had in satisfactory condition in an ordinary stove or Orchid house. The consequence of this is a great increase in the demand, and to meet it numbers of new forms have been introduced, and hybridising has been

resorted to with encouraging results. The houses appropriated to *Nepenthes* at Chelsea may be fairly considered the head quarters of the forms in cultivation, and probably it would be impossible to find a collection to rival it in Europe. Scores of plants suspended from the roof bore hundreds of pitchers, representing great diversity of form. From the long pitchers of *N. distillatoria*, which in the Glasnevin variety are much finer than the ordinary type, to the broad massive rounded pitchers of *N. bicalcarata*, there are numerous gradations, the colours and markings being similarly varied. The last mentioned species is at present far ahead of the others in general strength of habit, the broad leaves matching the capacious pitchers very well. *N. Rajah* is still young, but it is

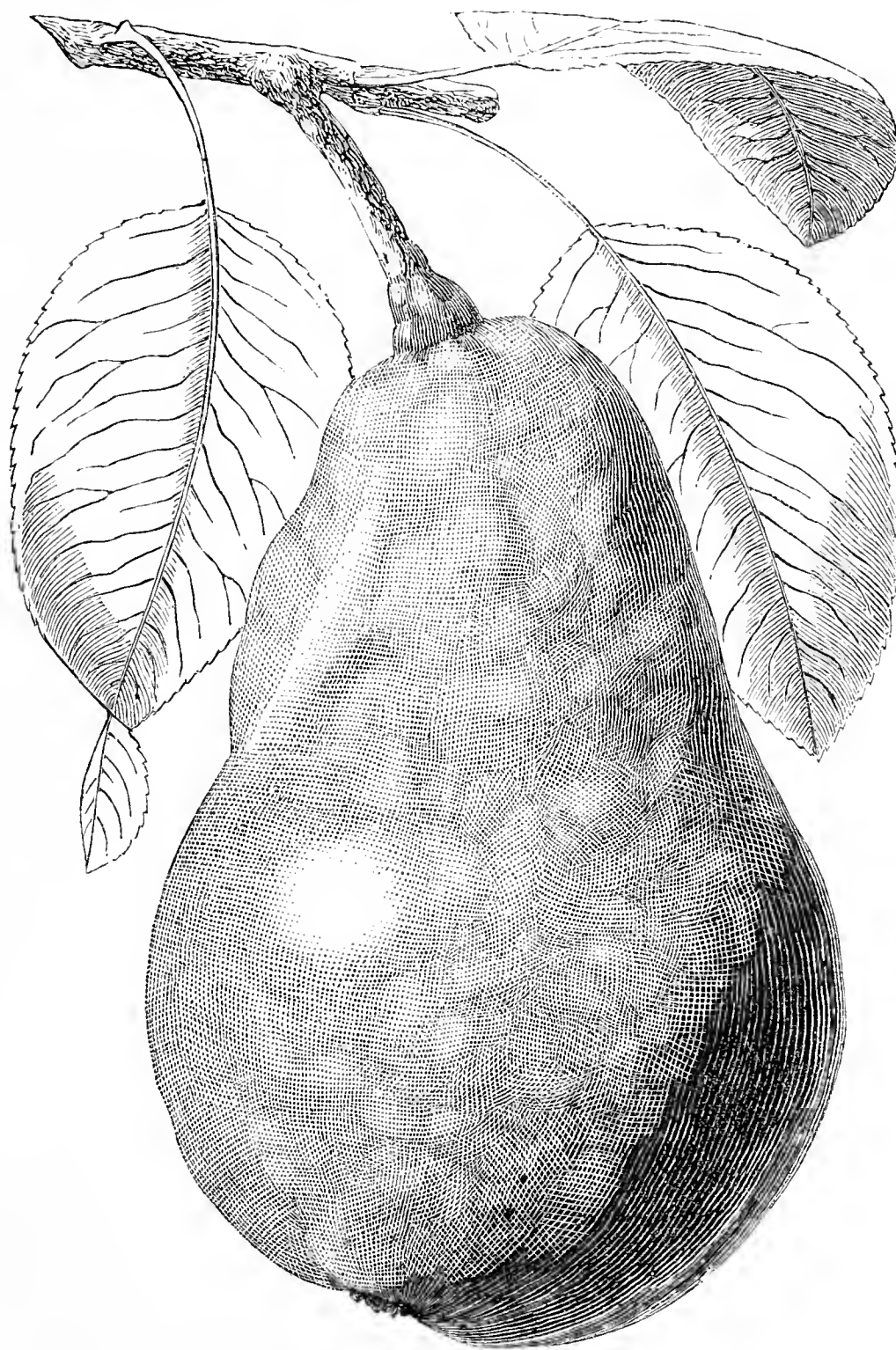


Fig. 94.—PEAR NOUVELLE FULVIE.

developing satisfactorily, and good provision has been made for its continued progress. In *N. madagascariensis*, too, the pitchers are not fully developed, but the fine deep red colour marks it as one of great promise. But certainly one of the most distinct and one which might be easily recognised among any at present known is *N. Veitchii*, which is remarkable for the very broad brown or yellowish green margin to the mouth of the pitcher, the body being long and green shaded with brown. *N. Mastersiana* with neat and bright-coloured pitchers; *N. Morganiana* streaked with red; the richly spotted *N. Hookeri* and the deep-coloured *N. sanguinea*, and the old *N. Rafflesiana* with others innumerable, are all

growing and "pitchering" admirably, in some cases perhaps better than they would in their native habitats.

STOVE PLANTS.—Among the vast numbers of these it is difficult to select a few for note, as all are good; but chiefly confining ourselves to the novelties we still have abundance. Foremost among these the beautiful *Jasminum gracillimum* deserves notice. When shown at Kensington for the first time last year it attracted much attention, and the plant exhibited at a recent meeting of the Royal Horticultural Society fully confirmed the high opinion that was generally formed of it, and proved that the first-class certificate awarded was well merited. Several specimens of good size in one

house admirably indicate the character of the plant. The long slender arching or drooping branches produce fine clusters of pure white fragrant flowers from nearly every axil. On one we observed about a dozen clusters showing, which develop successively from the apex of the shoot downwards. A plant so graceful in habit and so floriferous at this season of the year is extremely valuable, and will undoubtedly soon become a general favourite.

Another handsome new plant of special utility for this season is *Begonia socotrana*, which has been flowering for the past two months, and is still in good condition. This has been frequently mentioned in the pages of the Journal, and it fully deserves all that has been said in its favour. It is one of the most distinct species of a large and useful genus, the rich rose hue of the neatly formed freely produced flowers, the compact habit, and the large, thick, bright green, circular, shield-like leaves rendering it unique. The leaves vary a little in shape, but the majority are suggestive in form of small *Nelumbian speciosum* leaves, and on this account the plant is attractive even when not flowering. It will succeed either in a stove or intermediate temperature, the latter, we think, being rather preferable, as the flowers last longer and the growth is more robust.

Crotons are largely represented, and have their distinctive colours finely developed. *C. Hawkeri*, which has been figured in your pages, is very handsome, and in its way is quite unrivalled. The contrast of light yellow and dark green in the foliage is very striking, and several plants having now attained a good size show in the best possible manner how well the characters are preserved and even improved with age. *C. Evansianus* is quite a different type, with broader leaves richly marked with crimson, and *C. Cronstadtii*, with voluted leaves, is also highly coloured and beautiful; indeed, these form a capital trio worthy of cultivation in every collection.

The charmingly elegant *Asparagus plumosus nanus* was in beautiful condition, several scores of plants being alike marked by the same dwarf habit, which renders it so valuable for decorative purposes. The finely divided leaves, the segments of which resemble fine hairs in size, closely interlaced to form a gauze-like delicate leaf somewhat triangular in outline. These are admirably adapted for bouquets or buttonholes, and for table decoration small plants are especially well suited. Like other ornamental forms of the genus *Asparagus* this one can be grown in a lower temperature than that of a stove, though it appears to thrive either way; but probably the cooler temperature would be preferable where the plants are to be employed for decoration.

Turning to the Ferns, of which a large and choice collection is grown, there are many worthy of note, but two of the leading novelties can only be mentioned now. The first of these, the pretty *Gymnogramma schizophylla* (figured in this Journal page 277, last volume), is making good progress, the largest specimen well showing the distinctive characters of the species. As grown in a basket, with the long finely divided and forked fronds gracefully arching, the merits of the plant for such purposes cannot be over-estimated. Another good Fern, well suited for culture both in pots and baskets, is *Lastræa Richardsi multifida*. This when in good condition is a very beautiful variety with broad bright green fronds, the apex of which, with the tips of the pinnae, are neatly crested, imparting a very distinct appearance to the Fern. The fronds have a fine arching habit and are of good length, frequently reaching 3 feet. It is of robust constitution and free growth—in fact, a really useful addition to the list of cultivated Ferns.

Greenhouse plants were as bright as could be desired, many interesting old and new plants being in flower; but they cannot be referred to now, as these notes have already acquired considerable length, and to do justice to the occupants of the cool structure would need at least an equal length. However, readers may conclude from the preceding that Christmas at Chelsea was far from dull in a horticultural point of view.—SAXON.

PETRIFIED FORESTS.—An American gardening magazine recently published the following:—"In 1871 the petrified remains of a forest of Redwood, Oak, and other trees, thrown up from a lower level by volcanic action, and deeply imbedded in tufa, still with many portions of trunks some feet above the surface, were still to be found midway between Golden Pass and the Ute Pass, in the Rocky Mountains. It is now said to have disappeared, at least so far as anything is to be seen above the surface. It is said that another of these wonderful pre-historic series of remains in Sonoma, California, is fast disappearing before the zeal of relic-hunters. It is to be regretted that these wonderful remains of the mysterious past could not be preserved, and it may not yet be too late for the State to do something towards that end. The one in Colorado must have been buried very deep by the volcanic dust, as at the time referred to one of the trunks was hollow, and a string and a

stone at the end was let down and found to go many feet beneath the surface. No doubt if this old forest could be dug out to the original surface of the ground many interesting relics of plants and animals might be brought to light."

PERISTROPHE SPECIOSA.

THIS may be considered as one of the most useful and ornamental winter-flowering plants, and one that cannot be over-estimated for room and conservatory decoration. The flowers are bright purple and of moderate size, thus making themselves quite conspicuous amongst flowers of a duller colour. Most gardeners will know it under the name of *Justicia speciosa*; but our botanical brethren are not satisfied with old-fashioned names, but must be constantly altering them, so in order to keep pace with the times we must adopt the new one. *Peristrophe speciosa* was introduced to this country about 1826, and forms one of the greatest ornaments of the forests in the interior of Bengal. It is a plant easily propagated and easily grown, and should find a place in every garden where winter-flowering plants are appreciated. The individual flowers, like many other members of *Acanthaceæ*, do not last very long, but one point in their favour is they are not all produced at one time, so that a plant lasts in beauty some few weeks in a cool airy house. I have tried the same plants two years in succession, and have come to the conclusion that they are far from satisfactory the second year. The best way is to grow a new batch every season. When the young plants are fairly established the old ones may be thrown away.

The best time to insert the cuttings is the latter end of February or beginning of March. If placed in a little bottom heat they soon form roots. The cuttings may be inserted singly in thumb pots, or four or five in large 60-size pots, in any light sandy soil. As soon as the cuttings are rooted they may be potted into large 60's, and kept a little close for a few days till they begin to root, after which the ventilation must be increased. When they have filled their pots with roots the tops should be pinched out to induce a bushy habit. A few days after pinching they should be transferred to 48-pots, employing rich soil, consisting of good fibry loam, well-decomposed manure, a little leaf soil, and a dash of river sand. My best plants this season, and plants that flowered most profusely, were grown in 48-size pots; but if plants of a larger size are required, then the third potting will be necessary into 32's. It will be necessary to again pinch the points out of the leading shoots after they have become sufficiently long. Stopping them twice is all that will be required to insure good bushy plants. When the season is far enough advanced, and the plants well established, they may be grown in a cold frame for three or four months during the summer. By growing them cool, near to the glass, and well exposed to the sun, using no more shading than is absolutely necessary, I find they make stouter and shorter-jointed wood than when grown in heat. About the end of September if the weather is cold they should again be housed, giving a fair amount of air and liberal supplies of liquid manure. During their season of growth they should not be allowed to become dry at the roots; if so, they soon lose their lower leaves and look unsightly when in flower. By introducing them to a little more heat they can soon be brought into flower; but I find those plants that expand their flowers in a temperature of about 60° last longer in perfection than those that have been subjected to a higher temperature.—W. K.

SILKWORMS AND SILKWORM-REARING.—4.

(Continued from page 546.)

HAVING described briefly in the preceding article the growth of the silkworm (*Bombyx Mori*) from the egg until it has arrived at maturity (fig. 95), I remark further that, owing to the fact of the grand increase in size taking place after the last change of skin, any deficiency of food during the conclusion of the caterpillar life inevitably stunts the growth. It may not prove fatal, but it would tend to reduce the size of the cocoon or to impoverish the silk. The worms appear to feed at this time, with little cessation, by night as well as by day, and if we are in a room that contains a number of them busily engaged, the noise caused by the quick movements of their jaws can be distinctly heard. Now, too, as the growth nears completion, the delicate creamy tint of the skin begins to be displaced by a hue of yellow or yellowish brown. There is also observable a greater transparency. As in a multitude of other caterpillars, the disinclination it showed to move while food was plentiful around it is changed for a singular activity. The silkworm now crawls hither and thither in a way that seems purposeless, having ceased to eat, and shows a particular wish to climb up any vertical objects that may happen to

be near. From this propensity the breeders of silkworms call the period between the cessation of their appetites and the commencement of cocoon-spinning the mounting or ascending season. This desire to wander is brought to an end by the discovery of a suitable nook or resting-place where the cocoon can be fixed.

At the beginning of its task a silkworm throws threads on different sides of the space chosen in a rather irregular manner. Some of these are stoutish cords, serving to fix the cocoon; others are spun loosely, being a sort of floss silk, forming an envelope for the compact structure which is thereafter woven with such regularity as to allow the thread to be unwound entire if care is exercised. Coiling itself round, and employing its body as a measure, the worm draws out and works in the thread until all its silk is exhausted, this operation taking about three days. For a time its proceedings can be watched, but as the silk accumulates on the cocoon the worker is hidden from view. The calculating Robinet, in his comments upon this species, tells us that according to his reckoning a silkworm has to move its head three hundred thousand times in the construction of its cocoon. Say the average time is three days—that is, seventy-two hours, by a process of reduction we discover that there must be about sixty-eight movements in each minute. Another naturalist has informed his readers that the thread of forty thousand cocoons joined together would pass a silken band round our earth at the equator.

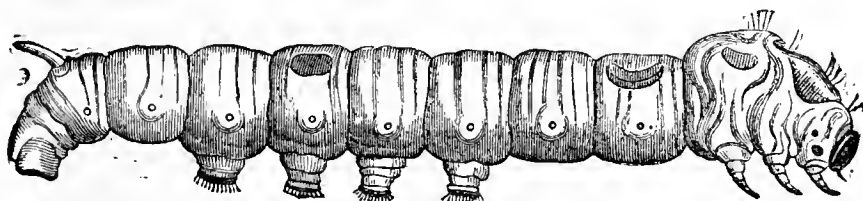


Fig. 95.—Adult Silkworm (*Bombyx Mori*).

Its labours being completed, the silkworm then assumes an attitude of repose, the body thickening, and the legs disappearing, until in two or three days more it undergoes pupation, and the larva skin is thrown off. There are curious and exceptional instances of a couple of worms uniting to form a double cocoon; from these the moths are apt to emerge more or less crippled. In two or three weeks' time, the chrysalis or pupa contains a moth ready to be developed, and on bursting its shell the insect liberates itself from the silken prison by applying a liquid to the walls. M. Guérin-Meneville, on dissection, found a gland in the head from which this is emitted by the newly emerged moth; and then having well moistened the cocoon, it is able to open up a passage to the outer world. The threads are by this process disunited, though not actually broken, therefore the moth is never allowed to proceed as far if the cocoon is to be utilised. We may observe here that the cocoons vary in colour according to the race. The com-

native region of this species, *B. Mori*, and that from Turkey the culture of the silkworm passed into other European lands, Italy and France having in the eighteenth century had the pre-eminence, and the latter country retaining to the present hour its importance as a nursery for the silkworm, in spite of fluctuations arising from domestic disturbances or failures in rearing the species. We shall hereafter notice more minutely the details of silkworm management in France, its successes and its difficulties, since these have an important bearing upon the experiments that have been made, or may yet be made, in Britain. Leaving this for the present, we would note that recently the rearing of the silkworm has been tried with good results in so many lands, that it may really be styled a cosmopolitan insect.

India, which has within its boundaries such varieties of climate, offers fine opportunities for silkworm culture in many extensive districts. Large Mulberry plantations have been made in the Mysore territories, and much excellent silk produced by this silkworm has been sent into the market, especially from Bengal. Though in some parts of India the Mulberry is found to grow with too great rapidity, in most of the provinces it flourishes quite as well as in the colder regions of the West. And it is favourable for the extensive rearing of *Bombyx Mori* that its suitable food may be obtained in all inhabited countries, save a few tropical ones, by the planting of Mulberry trees, a circumstance which does not belong to the history of other silkworms, where, though a species may be "acclimatised," a substitute must often be sought for in place of the natural food plant.

The vast island of Australia appears likely to furnish us with good supplies of silk in course of time. A recent statement from Melbourne is that its climate admirably suits the growth of the Mulberry and the development of the silkworm. In other parts of Australia the settlers have shown themselves anxious to try the culture of silk. The Sandwich Islands and the West Indies have been suggested as suitable for this purpose. Persia, one of the early homes, probably, of the silkworm, has districts with large plantations of Mulberries where silk might be easily produced in quantities, but at present only a little is obtained every year. From California we get the report that the silk-growers have already planted nearly ten millions of Mulberries, and they have succeeded in getting two or even three broods of the silkworms in a season. A lady resident at the Cape of Good Hope has discovered that the Mulberry thrives in the colony and the worms are reared easily; further north, in Natal, silk of first-class quality has been obtained. The modern Chinese, however, intent upon pushing their fortunes in foreign lands, have rather neglected one industry of their ancestors at least. Travellers report that in many localities the hills are covered with Mulberries where no silkworms are reared.—J. R. S. C.



HARDY FRUIT GARDEN.

As soon as pruning and nailing wall trees is finished standard trees should have attention, removing all superfluous shoots and branches, thinning out the spurs where too crowded, in order to freely admit sun and air to mature the crops of fruit. Only trees that are much crowded with wood should be treated in this manner. Trees infested with moss and lichen should have the bark scraped so as to remove the moss, and may be afterwards dressed with strong brine, and young trees may when wet be dusted with quicklime. The heads of young standard trees should be pruned, removing any shoots crossing each other or likely to interfere with the formation of symmetrical open heads. Trees which have attained considerable size and are unproductive, or if the variety is of inferior quality, may now be headed down, and in spring grafted with varieties that experience has proved suitable to the soil and situation. Soil and locality have much influence upon the health of the trees and the quality of fruit, some kinds of Apples and Pears being excellent in some parts whilst in others they are practically worthless. Therefore in forming new plantations of fruit trees it is always advisable to plant largely of the kinds succeeding in that locality, and to plant moderately of other kinds, until their suitability becomes known.

Bullfinches are already appearing and will require close watching,

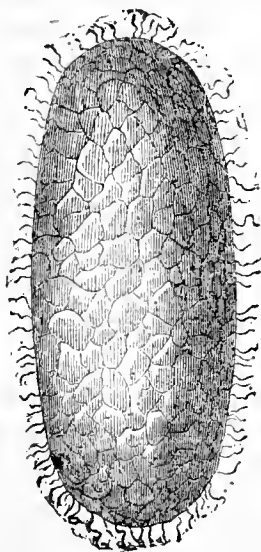


Fig. 96.—Full-sized Cocoon of *B. Mori*.

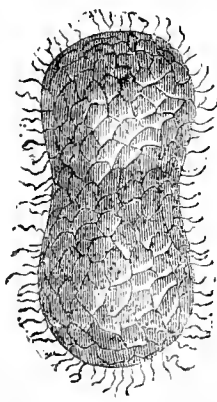


Fig. 97.—Small Indented Cocoon of ditto.

moner colours are white and yellow. White cocoons produce a silk which is considered to be of the highest value and greatest beauty; the bulk of the silk is, however, obtained from cocoons of various shades of yellow. One race of silkworms yielding yellow silk has a particularly large cocoon, but the silk is not esteemed as much as that afforded by cocoons of medium size. Then there are races whose cocoons are greenish white or decidedly green. Still more singular is a breed belonging to Tuscany, with cocoons of a rosy tint (figs. 96 and 97).

It has been already stated that the East appears to be the

or their attention to the already prominent buds of fruit trees, especially Plums and the Gooseberry bushes, may prove destructive of next year's crop. Shooting them is the only sure remedy. Gooseberries and Currants are often neglected in pruning at this season on account of the depredations of these birds, the work being delayed until a period when the pressure of other matters is considered of more importance, which is not favourable to the production of fine fruit. In pruning Gooseberries it must be remembered the fruit is borne on the young wood of the present year's growth and on spurs where the young wood has been shortened-in. The bushes, therefore, should have the young shoots moderately thinned, spurring in the side shoots on the main branches to a couple of eyes, the longer and stronger shoots shortened so as to form a symmetrical bush. Varieties of pendulous habit should be encouraged upwards by keeping a clear stem and shortening the points of the lower shoots. Black Currants bear on the young wood, and being erect in growth, only require thinning, removing old growths and encouraging young shoots from near the base or as low as possible, shortening the upper shoots as required. Red and White Currants do best when spurred-in to the main branches, which should not be more numerous than to form a symmetrical bush with the centre open. When pruned and the ground cleared a good dressing of manure may be given, and lightly dug or pointed in, except for young trees between which the ground is cropped, and may be dug more deeply. Deep digging only induces deep rooting and strong half-ripened shoots which produce little fruit. Cut down autumn-fruiting Raspberries close to the ground, mulching the stools with decayed manure. The fruit is borne on the young growth of the current season, hence the necessity of cutting the canes close so as to direct the energies of the plant to produce vigorous growths for the autumn crop.

FRUIT HOUSES.

Vines.—The earliest-forced Vines in pots are now well advanced for flowering, and should have a night temperature of 70°, falling to 65° in the morning, or during very severe weather to 60°, keeping the heat at 70° to 75° by day, with a rise of 5° to 10° from sun heat, moderately ventilating on favourable occasions, keeping up moderate moisture by damping available surfaces in the morning and early afternoon, and this with the moisture arising from fermenting materials will afford ample moisture in bright weather, that from the fermenting materials being sufficient in dull weather. Allow a fair extension of lateral growth, but do not allow more to be formed than are to remain, as a severe reduction of foliage gives a check disastrous to the swelling of Grapes and their finishing well. Keep the roots well supplied with tepid liquid manure, and the heat steady about the pots at 75° to 80°. Early-started Vines planted out have commenced growth, and the temperature should be maintained at 60° to 65° at night and 70° to 75° by day, with a few degrees advance from sun heat, ventilating carefully above 75°. Disbud as soon as the best breaks are distinguishable; and although it is advisable to leave more growths than will be allowed to carry bunches, no more shoots should be encouraged than when fully developed will have space for full exposure to light and air. Do not be in a hurry in stopping, allowing the shoots to make two or three leaves beyond the bunches before taking out their points.

Syringing must be practised in the morning and early afternoon of fine days, turning over a portion of the fermenting materials every morning, renovating with a little fresh stable litter as may be necessary, or keep the evaporation troughs regularly charged with liquid manure—guano water at the rate of 1 oz. to the gallon of rain water. Cease syringing when the bunches are clear of the foliage. Vines started early in the month are breaking freely, and should have the temperature gradually raised to 60° at night and 65° to 70° by day, with 5° to 10° advance from sun heat. Syringe two or three times daily, but only to provide a genial condition of the atmosphere, as an excess of moisture induces thin flabby foliage, long-jointed wood, and aerial roots from the rods. See that fermenting materials on outside borders are not allowed to become cold, but replenish with fresh materials as necessary. The Vines intended to afford ripe Grapes early in June will need to be started at once. Those that have been subjected to the process in previous seasons will start

readily into growth; indeed, they are now breaking, but those not so treated will need a temperature of 55° artificially day and night, advancing to 65° from sun heat, whilst those before alluded to should only have 50° at night, 55° by day, and 65° by day from sun heat. Syringe the Vines twice, and if the weather be bright three or more times a day, allowing them to become dry at night. Young Vines will need the rods depressed to insure the buds breaking regularly. Push forward the pruning and dressing of Vines from which the foliage and crop have been removed, cleansing, and if necessary painting the house.

Late Vines with the Grapes still hanging require the atmosphere as dry as possible, maintaining a night temperature of 40° to 45° for Black Hamburgs, and ventilating freely by day in favourable weather. Muscats must have a temperature of 50° and a little air admitted constantly, as a close cold atmosphere soon causes the berries to spot and decay.

Cucumbers.—The weather has been very favourable for the growth of the winter-fruiting plants, and they are more robust and healthful than is the case when the weather is such as to render extra firing necessary. Light is a very important element in Cucumber cultivation. It is essential, particularly at this season when the days are at the shortest, that the glass be kept thoroughly clean both inside and outside. In dull weather avoid giving liquid manure freely, as it tends to induce flabby unhealthy growth. Be careful not to overcrop the plants now, and do not allow the fruits to hang too long, as it greatly weakens the plants. The fruit cut will keep fresh several days if the neck end be inserted in saucers of water and kept in a moderate temperature. If canker is noticed in the old growth press quicklime well into the infested parts. Continue the instructions given in our last calendar in regard to temperature, &c.

Pines.—If a sufficient number of plants failed to form fruits in October or November of such kinds as Black Jamaica, Montserrats, Smooth-leaved Cayenne, and Charlotte Rothschild, plants starting now into fruit will not be ripe in May and June; and as that is an important time to have ripe fruit, efforts must be made to induce plants of other kinds that ripen more quickly, such as Queens, Enville, and Providence, to start into fruit at once. If a fair proportion of the successional stock has been subjected to a somewhat dry and cool treatment a selection from such plants can be made, choosing those which have developed an enlarged base with a tendency to open in the centre. These should be placed in a light house and have a brisk bottom heat of 85° to 90°, the top heat varying from 60° to 70° at night according to the weather, and 5° more by day and 10° from sun heat. Maintain a genial condition of the atmosphere by sprinkling the plants once or twice weekly and occasionally damp the cool surfaces about the house, but avoid steaming by damping highly heated hot-water pipes or syringing the surface of the bed between the plants. See that the soil at the roots is sufficiently moist, employing tepid water with a little guano in it, applying it copiously when needed, which in the case of healthy plants will be about every ten days, but a weekly examination of the plants should always be made. Continue the temperatures as before advised to other stock in their several stages.

PLANT HOUSES.

Stove.—Although bottom heat as a medium for plunging the pots of stove plants in is not so much employed now, there can be no doubt that a bed of fermenting materials, such as a bed of tan, is highly favourable to the growth of the plants, and causes a considerable saving of fuel. A bed of tan will maintain a temperature of at least 90° for two months. To render assistance in this way no time should be lost in preparing the material, all fresh tan being decidedly preferable; but where this is difficult to procure Oak leaves form the best substitute, having a good reserve to add as the heat declines or the material subsides.

Clerodendron Balfourianum is one of the most useful decorative plants. It flowers quite freely in a young state, the wood being well matured, plants in 6-inch pots being very useful; but it should be grown in quantity, as successional plants can be had in flower at almost any season by plants in different stages of growth. To rest the plants they must be kept dry at the roots, even so as to cause the

leaves to flag rather freely before any water is given, and then only a little to enable them to recover somewhat, and keeping in a temperature of 55° at night. After a few weeks' rest they will start freely into growth and flower in a brisk moist heat, and, the ball being dry, immerse it in tepid water until saturated.

Orchids.—Be careful not to excite these into growth at this season, as rest is of the greatest importance to Orchids; and as this is the duldest and usually the coldest period of the year the temperature should be the lowest, not employing more fire heat than is absolutely necessary to keep the heat in the East India house at 60° by day and 55° at night; the Mexican house 55° by day and 50° at night; the cool house 50° by day and 45° at night, allowing a few degrees rise by sun heat. Cool treatment at this season will result in a more vigorous subsequent growth. Although attention must be paid to the moisture of the atmosphere, a saturated atmosphere now causes serious injury, but, on the other hand, it must not be allowed to become so dry as to cause the stems and leaves of the plants to shrivel. A little water poured on the benches and paths every morning when the weather is fine will be sufficient. *Dendrobiums* intended for late flowering, such as *D. Farmeri*, *D. densiflorum*, and *D. macrophyllum giganteum*, which are easily retarded, should now be placed in a cool house and kept dry, similar remarks applying to *D. nobile* which it is desired to retard until May should be placed in a greenhouse temperature, giving little, if any, water until they begin growing, when they must have heat as well, as it is prejudicial to check any plant after it has started into growth. *Dendrobium nobile* is one of the most useful Orchids for decorative purposes, and it is very easy to keep up a succession of blooming plants. Those grown in 6-inch pots are useful for filling vases, &c., from January to May by calculating each batch of plants to last in flower about three weeks. Those that completed their growth early have their buds in a forward state, and if placed in heat and supplied with a little water they will flower in a short time.

THE BEE-KEEPER.

HONEY AS AN ARTICLE OF FOOD.

WE have much pleasure in publishing the following excellent paper read by Mr. T. W. Cowan, F.G.S., of Horsham, at the Brighton Health Congress:—

Mr. Cowan said that bees in olden time were extensively cultivated for their honey and wax, and it was remarkable how frequently allusion was made to these products by ancient writers. We read that the land where Abraham dwelt was one "flowing with milk and honey," and that in the Mosaic law there were many statutes regulating the ownership of bees. Solomon recommended the use of honey in the words, "My son, eat honey for it is good." About 600 years B.C. bees seem to have been regularly cultivated, for Solon made a law requiring bee hives to be placed 300 feet apart in cultivated fields. The Persians, Greeks, and Romans made use of honey extensively, and it was used for sweetening their beverages. It was mixed with wine, and to this day it is used by the Spaniards in sweetening "Malaga wine." It was used up to the seventeenth century when sugar was introduced, and as the use of this increased the use of honey decreased. On the continent of Europe bee-keeping had been carried on more extensively in former times than in England, and for a long time we had been depending on foreign supplies.

In the olden times, when bees were destroyed by brimstone, different ways were adopted for separating the different qualities of honey. The light-coloured combs were pressed and strained to get the best quality, and the inferior honey was used to make "*pain d'épices*," a sort of gingerbread sold in every town in France. Large quantities were imported into this country from Cuba, Chili, and, lately, extracted honey from California. It was not until the formation of the British Bee-Keepers' Association in 1874 that really much progress was made in developing the honey resources of this country. Bees are no longer destroyed to obtain their honey, but are induced to build straight combs in frames, and these are taken out, and, having the cells uncapped, are placed in an extractor, by which means the honey is obtained in a pure state, and very different to the heterogeneous mass of honey, pollen, and crushed brood which was formerly known by the name of honey. He stated that there was great economy in being able to return the combs to be re-filled, inasmuch as it took 20 lbs. of honey to make 1 lb. of comb. He wished it to be understood that bees did not make

honey, but that they collected it from the nectary of flowers, and that each flower yielded honey of its own peculiar flavour.

The climate of England was particularly suited for the purpose of bee-keeping, and there was no country where it could be produced better in flavour than in this. He said pure honey should be used by every family. It was no longer a luxury only to be enjoyed by few, but was sufficiently cheap to be within the reach of all. It had properties which made it a valuable food. It differed from alcoholic stimulants, which dull the intellect, as it produces a bright intellect. Children were very fond of honey, and one pound of it went further than a pound of butter. It had the peculiarity of keeping good, whilst butter would become rancid, and thus is injurious to health.

In recommending honey as an article of food caution must be used, as there was much foreign honey that was adulterated. Pure honey would granulate and become solid on the approach of cold weather; it could, however, be made liquid by placing the jars containing it in warm water. The adulterated honey was always liquid and transparent, and would not granulate. He read an extract from an American paper, in which Mr. Murth stated that one gallon of honey was mixed with ten gallons of glucose. Glucose had no flavour of its own, but partook it readily from this small admixture of honey. He would always look with suspicion upon honey said not to granulate. He would recommend consumers to purchase pure English granulated honey, and reduce it to its liquid state themselves. He was glad to say that adulteration had not yet commenced in England, and from the vigilance of the Bee Associations he did not think it would be attempted.

Associations were being formed in many counties in connection with the British Bee-Keepers' Association for the purpose of spreading a knowledge of bee-keeping and developing the honey resources. There were fourteen county associations; and if those who are in a position to do so would take a deeper interest in aiding this particular work, he was sure they would not only find it a healthful exercise, but would be pecuniarily benefited, at the same time being able to procure a wholesome article of food.

[We trust the Associations referred to will receive the well-merited support of the public in furtherance of objects at once so important and commendable.—ED.]

BOILING WAX.

HAVING read Mr. Pettigrew's remarks on the above subject (page 550), I will refer to the plan I adopt, and which I find to answer well with the smallest amount of trouble and waste. I send these particulars for the guidance of any reader who may wish to follow the plan.

First procure a piece of fine copper gauze, No. 36, as large as convenient to use, turned up a little all round to hold as much comb as possible (the piece I use is 13 inches by 10); second, a dish to hold the gauze and to receive the wax as it melts; third, another dish or tin a little larger partly filled with water for the smaller dish to stand in and to keep the wax from burning. Squeeze the combs together so that more may be put on at once, and fill the gauze with as much as it will hold and place it in a good hot oven; refill with combs as it melts down, and empty the dish into moulds.

This year I did not take the combs to be cleaned by the bees on account of the commotion it always makes amongst them, but those that were not worth draining with the other combs I put with the others on the gauze, the honey in them running through with the wax settling at the bottom, which I put into a feeder and gave it the bees in that way at night.

In my plan the combs need no washing to remove the pollen, &c., as mentioned by Mr. Pettigrew in the latter part of his letter, which must be an unpleasant task. All the dirt remains on the top of the gauze, which only needs emptying off in the fire now and then after all the wax has run through. I feel sure that anyone who tries the above plan will be pleased to see how comparatively easy it is in comparison with the boiling plan.

I am glad to say this season has been a very good one here in comparison to the previous two seasons, when I did not get an ounce of honey, but had to feed liberally. This year I had 80 lbs. from one hive and two supers.—P. RAINFORD, Wigan.

TRADE CATALOGUES RECEIVED.

E. Webb & Sons, Wordsley, Stourbridge.—*Spring Catalogue, 1882* (with coloured plates).

Louis Van Houtte, Ghent, Belgium.—*Catalogue of Gesneraceous Plants.*

W. M. Crowe, Upton, Essex.—*Catalogue of Miscellaneous Plants.*

B. S. Williams, Upper Holloway, London, N.—*Illustrated Catalogue of Flower and Vegetable Seeds.*

Harrison & Sons, Leicester.—*Illustrated Catalogue of Flower and Vegetable Seeds.*

Dickson, Brown, & Tait, Manchester.—*Catalogue of Flower and Vegetable Seeds (illustrated).*

James Vick, Rochester, New York.—*Floral Guide (illustrated).*

James Veitch & Sons, King's Road, Chelsea.—*Catalogue of Flower and Vegetable Seeds (illustrated).*

Bruant, Boulevard Saint Cyprien, Poitiers, France.—*Catalogue of Novelties.*

Charles Sharpe & Co., Sleaford, Lincolnshire.—*Catalogue of Vegetable and Flower Seeds (illustrated).*



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Correspondence (Z. W. P., and Others).—Owing to the great pressure upon our columns, your letters with a number of other valuable communications we are compelled to hold over until next week.

Gros Colman Grape (Amateur).—We do not advise you to include it in a "small collection in a very small house," because the Vine requires as much if not more space than any other variety, it being a very strong grower. A lateral spread of 4 feet should be afforded, or fine well-finished fruit cannot be expected to follow with certainty.

Poinsettias (L. O. E.).—We shall shortly publish some cultural notes on this brilliant winter decorative plant from a gardener who grows it successfully and has afforded us proof of his skill. If, after reading the article in question, you require further information we will readily supply it if you will specify your wants.

Ivy for Fence (York).—No doubt Ivy would be as suitable as any other evergreen for covering your fence, but it will need to be secured with nails and shreds, as it will not adhere satisfactorily to boards whether they are tarred or not. The tarred fence when dry and sweet will not prevent the growth of the Ivy. The spikes issuing from your *Cedogynce* are no doubt flower spikes. The plant will not require shade at this season, and a genial minimum temperature of 55° to 60° will be suitable. With a moderately moist atmosphere syringing will not be required, as too much moisture causes the spikes to decay.

Leaf-miners on Cineraria (C. E. M.).—These leaves have been attacked by a small maggot, the larva of a fly in the genus *Tephritis*. The species is uncertain till the insect can be reared to maturity. It is allied to the well-known Celery fly (*T. onopordium*). That, however, quits the leaf and descends to the earth to undergo pupation, while on this species the larva, when adult, have secured themselves to the leaves. We fear there is no mode of dealing with this pest by way of precaution, but all leaves that have tracks or burrows should be removed and burnt.

Midseason and Late Peaches (J. E.).—You do not state the number you require. The following are better varieties than those you name:—Mid-season—Early Grosse Mignonne, Old Grosse Mignonne, Bellegarde, Noblesse, and Royal George. Among the best later Peaches are Barrington, Princess of Wales, and Gladstone; the last-named was exhibited in fine condition and successfully at the Manchester autumn Show. Lord Palmerston is a noble-looking Peach, but often inferior in quality and seldom first-rate. The best yellow-fleshed Peach is Early Crawford, an American variety. The best late Nectarine is the Victoria. Very late Peaches are not usually satisfactory; one of the best is Desse Tardive, which you may safely include in your collection. If you do not possess Mr. Rivers' work, "The Orchard House," you would find it useful. It is published by Longmans, and can be had through a bookseller for a few shillings. If you can give us an approximative date of the article to which you refer we will endeavour to find it, but the number may be out of print.

Persimmon (J. R. L.).—The tree known by the above name is *Diospyros virginiana*, very common in the middle and southern States of America, and is there called Persimmon. When ripe the fruit is round, of the size of an ordinary Plum, and of a dark yellow colour, containing a soft yellow pulp, in which the seeds are enclosed. When green the fruit is very harsh and astringent, but when perfectly ripe, and after it has been subjected to frost, it is sweet, glutinous, and agreeable. It is said that in the southern and western States it is made into cakes with bran, and used for making beer, with the addition of water, hops, and yeast. A spirituous liquor is obtained by distillation, the infusion has been fermented. The unripe fruit contains tannic acid, sugar, malic acid, colouring matter, and lignin; and it has been used advantageously in diarrhoea and chronic dysentery. The wood is very hard, but brittle and white, and is very good for joiners' tools, such as planes; but it soon rots when exposed to the weather. The bark has been employed as a febrifuge.

Grapes Shanking (H. M., Paris).—The following extract from the "Cottage Gardener's Dictionary" will answer your inquiry—"Shanking is an ulceration or gangrene, attacking the footstalks of the bunches, and appears to be occasioned, like shrivelling, by the temperature of the soil being too much below that in which the branches are vegetating; and, consequently, the supply of sap to the Grapes is much diminished, and the parts which thus fail of support immediately begin to decay. This is an effect always the consequence of a diminished supply of sap, apparent either in the leaves, flower, or fruit. The coldness of the soil causes this torpidity in the action of the root; and this perhaps at the very period when the greatest demand is made upon it to sustain the excessive perspiration which is going on in the leaf, and to furnish fresh matter for elaboration, to both which ends it is frequently quite inadequate, owing to drenching rains. If the young fibre be examined at such incle-

ment periods it will be found somewhat discoloured, and in some cases quite rotten. Shanking, we conceive, is generally caused by the unnatural disagreement of temperature between the root and top, independent, in the main, of the question of moisture. It generally occurs with Vines which have been somewhat forced; seldom on open walls—seldom with Vines forced in pots or tubs."

Mignonette in Pots (T. P. C.).—The following instructions, which were communicated by a first-rate cultivator, will perhaps be of service to you—"Mignonette, which is a general favourite on account of its delightful fragrance, is seldom seen in good condition except in market-growing establishments. It is of easy culture, and within the reach of everybody. September is the best time to sow the seed for raising plants for spring blooming. The most useful-sized pots are 48's, and the most suitable compost two parts of turfy loam and one of decomposed cow manure, with a sprinkling of old lime rubbish. Place over the crocks about 2 inches of decayed manure (as the Mignonette delights in a rich compost), and fill the pots with the above compost; press the soil in firmly, sow the seed rather thinly, and sprinkle a little soil over it; plunge the pots in a cool frame in ashes within 3 inches of the glass, supply water rather sparingly till the seed germinates, after which the plants should have very little water. Thin the plants out well, retaining about six or seven in each pot. Ventilate freely night and day to keep the plants sturdy, leaving the lights off altogether on all favourable occasions. Discontinue watering from the middle of November till the end of February. This is the secret of success, as if the plants are watered through the winter they become weakly and drawn, and the result is never satisfactory. Do not mind the plants flagging a little, which sometimes they will do when the sun is rather strong. About the first week in March they will require to be watered rather more, never allowing them to become dry; ventilate freely, and when they show bloom water with liquid manure. Place a neat stick to each plant, so that the air may circulate well amongst them." Seed may also be sown now and onwards for producing successional plants, placing the pots in a very light position in a pit or greenhouse. We are unable to give you the address unless we know for what purpose you need it. See our request at the head of this column. If you require any particular information we are quite prepared to supply it if you will state your wants fully and clearly.

Cypripedium spectabile (A. James).—You have been correctly informed. The plant is quite hardy, but it is admirably suited for growing in pots and large shallow seed pans. There cannot be too much said in favour of this lovely Orchid, as it possesses merits which should make it a general favourite with all plant-growers; and when its perfect hardiness is taken into consideration with its present inexpensiveness there is no reason why everyone should not possess one of the very best perennial Orchids. The plant is easily distinguished from all others. It grows from 1 to 2 feet high, the stems being more or less covered with leaves of a light green colour and conspicuously veined. The flowers, which are borne singly or from two to four on the stems, are very showy; the sepals and petals are spreading, ovate in form, the petals being much the widest, pure white in colour; the lip is very much inflated, of a rich rose colour, sometimes nearly crimson. The soil best suited for it is good peat and coarse sand, with some sphagnum chopped up fine and mixed with the peat. If grown in pots several should be placed in a large pot and kept plunged in moss or fibre in a shady place. When well-grown it is a most beautiful plant for exhibition purposes, and it can be readily forced. It can be equally well grown if planted outside in peat and sand in a shady place or on the rockery, where it is quite at home with many of the Primulas, Dodecatheons, and Ferns. It forms a lovely companion for Ferns. The stems springing up from among the light green fronds of the Lady Fern are exceedingly attractive, and the plant thoroughly enjoys such a home. We have had it planted in old stumps with other rarities, when it seemed to be peculiarly happy.

The Cashew Nut (Lorimore).—The Nuts to which you refer are produced by *Anacardium occidentale*, a small tree 16 feet high, a native of the East Indies, the West Indies, and South America; but it is supposed that the East and West Indian are two distinct varieties. The fruit of this tree is formed by the enlargement of the footstalk of the flower, and is about the size of a large Orange, with an agreeable subacid flavour and a slight astringency. It is sometimes of a yellowish and sometimes of a red colour. The juice expressed from it and fermented yields a pleasant wine, which, when distilled, a spirit is drawn from it superior to arrack or rum, making an admirable punch, and acting powerfully as a diuretic. They are eaten when ripe, and frequently roasted for mixing in punch to give it a pleasant flavour. At the end and on the outside of this fruit grows a kidney-shaped nut, an inch or more in length and three-quarters of an inch broad, consisting of two shells. The outer is of an ash colour, and very smooth; under this is another which covers the kernel; and between them there is a thick black juice, which is very caustic; but the kernel when fresh has a most delicious taste, and abounds with a sweet milky juice. They are eaten like Chestnuts, either raw or roasted. These Nuts are what are known as Cashew Nuts. The juice which they contain is extremely acrid and corrosive, producing, when applied to the skin, severe inflammation followed by blisters, and it has often proved very troublesome to those who incautiously put the Nuts into their mouth or break the shell.

Nucleus Hives (Inquirer).—We have a letter on this subject from Mr. Cheshire which did not reach us in time for insertion this week; it will appear in our next issue.

COVENT GARDEN MARKET.—DECEMBER 28.

LITTLE or no business is doing in our market on account of the holidays, and there is no quotable alteration in prices.

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4	0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0	0	0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	100	1	0	0	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1	0	2	pickling.....	quart	0 0 0 5
Broccoli.....	bundle	0	9	1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	1 sieve	2	0	2 6	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0	6	1 0	Potatoes.....	bushel	2 6 3 0
Carrots.....	bunch	0	4	0 6	Kidney.....	bushel	3 0 3 6
Capsicums.....	100	1	6	2 0	Radishes.....	doz. bunches	1 0 0 0
Cauliflowers.....	dozen	1	0	3 6	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1	6	2 0	Salsify.....	bundle	1 0 0 0
Coleworts.....	doz. bunches	2	0	4 0	Scorzoneria.....	bundle	1 6 0 0
Cucumbers.....	each	0	6	0 8	Seakale.....	basket	2 0 2 3
Endive.....	dozen	1	0	2 0	Shallots.....	1 lb.	0 3 0 0
Fennel.....	bunch	0	3	0 0	Spinach.....	bushel	3 0 0 0
Garlic.....	1 lb.	0	6	0 0	Tomatoes.....	1 lb.	0 8 1 0
Herbs.....	bunch	0	2	0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0	3	0 4	Vegetable Marrows	each	0 0 0 0

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	1	0	3	6	Lemons.....	¾ case	12	0	16	0
Apricots.....	doz.	0	0	0	0	Melons.....	each	0	0	0	0
Cherries.....	¾ lb.	0	0	0	0	Nectarines..	dozen	0	0	0	0
Chestnuts.....	bushel	16	0	0	0	Oranges.....	¾ 100	4	0	6	0
Currents, Black..	½ sieve	0	0	0	0	Peaches.....	dozen	0	0	0	0
„ Red.....	½ sieve	0	0	0	0	Pears, kitchen..	dozen	1	0	1	6
Figs.....	dozen	0	0	0	6	dessert.....	dozen	1	0	3	0
Filberts.....	¾ lb.	0	0	0	0	Pine Apples...	¾ lb	1	6	2	0
Cobs.....	¾ 100 lb.	75	0	0	0	Strawberries...	per lb.	0	0	0	0
Gooseberries...	½ sieve	0	0	0	0	Walnuts.....	bushel	7	0	8	0
Grapes.....	¾ lb	6	4	0	0						



POULTRY AND PIGEON CHRONICLE.

AGRICULTURAL IMPLEMENTS AND MACHINERY.

(Continued from page 575.)

THE next implement to which we shall allude is a hay press, and it is of some consequence to notice this, for we find it reported that hay has been recently imported into Glasgow from parts of the American continent, and in certain seasons when the hay crop is very deficient here the supply may be very considerable from abroad after being pressed in the smallest space. About two years ago we noticed a sample of hay in a corn exchange in a southern county; it was evidently grown on cultivated land, and was composed chiefly of Timothy Grass. It was imported from Canada, and beautifully bright and well made, and the aroma from it was agreeable and perfect. This shows that under certain circumstances, when hay is scarce in this country, that we may be furnished from abroad with a superior article. But hay at the best is bulky, and always will be; but the bulk may be greatly reduced by pressure and packing, as may be seen by the hay stored on board the steamers. Anything which will compress hay into a less compass than usual must be of great importance, not only for storing in our own shipping, but especially when imported from other countries.

The American implement makers are generally alive to any invention which may answer their purpose; in fact, numerous instances show that they are an inventive race, for we owe to their genius the first introduction into this country of articles of high repute and numerous agricultural implements and machines now in general use. The press to which we now allude is called the Perpetual Baling Press, and is an American invention, which was shown in its present identical form at Philadelphia in 1876. It was then described as Dederick's Hay Press, from the name of the patentee. In the absence of illustrations we wish to convey, if we can, a correct idea of this machine. The hay is fed into a hopper by the attendant, and that at regular intervals when the traverser is withdrawn a fork or board descends and forces the loose hay into a chamber below the hopper, where it is subject to the compressing action of a reciprocating traverser. The hay, after it has been forced down by the fork or board preparatory to its being driven forward by the traverser, is subject to the combined action which causes each section of the bale to be folded up. The pressing is accomplished by the reciprocating traverser moving backwards and forwards underneath the hopper, which presses against the compact hay, and forcing beyond its traverse at each revolution all the hay pitched into the hopper. The chamber into which the hay is forced is provided with steel springs, which retain all the hay forced beyond them and prevent expansion backwards when the traverser is withdrawn. The size of the chamber is 12 by 15 inches, and this of course regulates the dimensions of the bale, which can be made of any convenient

length, although the usual size is 3 feet, by the insertion in the hopper of wood followers with slots on their surface, through which the wires are passed for tying the bale as it passes through the chamber. The wires of proper length being first prepared, an attendant below passes the wires through the slots in the followers, and brings the ends together on one side of the truss with pincers. The liberation of the truss from the discharge end of the chamber, by allowing some lineal expansion, tightens the wires. The mouth is adjustable, so that by turning a nut the bale is released or held, thus forming light or heavy bales as required. Two men only are required to work the machine, the hay being supplied on to a platform which is level with or slightly above the top of the hopper. One feeds the machine whilst the other attends to the wiring of the trusses or bales.

It will be understood from this description that the bale consists of a number of independent sections pressed closely together, so that when the ties are removed each section may be taken off without pulling the bale to pieces, and without that waste inseparable from the distribution of a homogeneous mass. This is a point of considerable importance. The sections can be piled up as so many blocks ready for use, or the bale can be placed on end and gradually reduced by the removal of consecutive sections. As these observations are taken from the report of the Judges at the Derby meeting of the Royal Agricultural Society, we find that they weighed a truss 12 by 15 by 36 inches, which scaled 1 cwt. 1 qr. 16 lbs., being about 42 lbs. to the cubic foot, whereas the machine could if required compress 45 lbs. to the cubic foot, which would allow 1 ton of hay to be packed within 1 ton measurement of 40 cubic feet.

In a time test it was found that 3 feet 8 inches of hay was discharged in two minutes. As this weighed 191 lbs., and the work is continuous, it follows that the machine can bale about 2½ tons per hour; whereas the Pilter Press, which makes a circular truss and which was awarded the silver medal at the Kilburn meeting of the Royal Society in 1879, bales only 1 ton per hour. The Judges considered that this machine has merit and utility for the following reasons:—The rapidity of execution, and the small cost of manual attendance: the peculiar way in which the hay is passed in sections: the simple action of the presser, minimising waste: and the advantage of the rectangular form of truss for stowage as compared with cylindrical trusses. The exhibitor claims that this machine can be applied to comparatively green hay in the fields, and that such compression would prevent fermentation, even if the hay were packed in a much greener state than that in which it is usually stacked, and this opinion was shared in by Mr. Scotson, one of the Judges, who is an extensive hay seller, and who held a strong opinion that through its agency hay might be secured from the field in a much greener and therefore more valuable condition than when stacked and sweated as in ordinary practice. The fact of hay being so closely packed would, by excluding the air, prevent heating; moreover, the bales could be so stacked in barns or sheds as to secure ventilation between them. One machine capable of pressing 2½ tons per hour could deal with the crop as rapidly as by ordinary stacking, and the hands employed less numerous. There are various points of great advantage which the home farmer as a practical man will see at a glance and the inexperienced may study with benefit in the foregoing statement, and for this reason we have made a more than usual copious extract from the Judges' report.

We must next refer to a new style of plough exhibited at the Derby meeting called a gang plough, introduced by a Mr. Cooke, and is quite a novelty when compared with the implements to which the home farmer has been accustomed, but they have been in use in America, constructed upon a similar principle, for some years. It appears to us that this plough, which is made to turn two or more furrows, will soon undergo great improvements; we shall, therefore, only make a few observations on its construction. The plough consists of a strong main beam composed of angle iron and wood combined, and to this is attached by large screws another beam of iron carrying the front frame, which is adjustable according to the width of the furrows that are desired. Between and above the beams in front the pole is attached, being carried on a plate about 2 feet from its lower end. The pole rocks loose on this plate. According to the present arrangements the pole is necessary in order to steer the plough, two or three or more horses may be yoked abreast. The driver has a seat fixed between and above the wheels slightly behind the axles, which balances the apparatus. The driver can regulate all matters relating to the depth of the work, the turning at the ends of the field, &c., without leaving his seat. Coulter's forcefeed drill is a comparative new implement, and a departure from the ordinary formation of English drills. It is so arranged that whenever the feedcups are filled with seed, and the drill put in motion, a

regulated quantity shall be discharged from each cup; and this must take place in whatever direction or pace the drill travels. Thus there is little or no difference in the delivery, whether the drill is travelling on the level or on a hill side. Through a simple arrangement of geared wheels working an index on a disc, the land is actually measured in the act of drilling. In front of the seed box is a small drill for sowing Clover and grass seeds. The whole apparatus is strong and simple, and the delivery will be formed more accurate than with the old disc and seedcup arrangement. The implements we have alluded to are all illustrated in the last issued Journal of the Royal Agricultural Society of England, and we advise gentlemen to furnish their home farm managers with a copy.

WORK ON THE HOME FARM.

Horse Labour.—All the land to be fallow-ploughed should now be finished, and in case of strong wet soils it should be carefully water-furrowed, and made with a sufficient fall to carry off the surface water quickly. On the driest soils where clean we note that some farmers are laying out the manure direct from the farmyard, to be ploughed in as fast as it is spread. This is a good plan, for on dry land it is ready early in the spring to be worked down fine, and drilled with whatever crop we may require. In the case of planting with Potatoes, it may be ploughed shallow with light one-horse ploughs, and planted as fast as ploughed; and any additional manure required should be Peruvian guano, strewed in the furrow with the sets. Wheat-drilling will in some cases be continued, but must be done as fast as the land is ploughed, otherwise the work is sure to be interrupted by rain or frost. Sowing by hand is, however, rather better at this period, for the land can be seeded close up to the ploughs, thus securing the seed being covered in should rain occur at any time of the day. Carting chalk will be going on, and laid into heap to be drawn out and spread in the first favourable weather which may occur, so that the night frosts may break down and reduce the coarse portions into a state fit to plough in without the expense of breaking by hand. This is a very important operation, for unless the chalk is buried in the soil it is exposed to the drying winds of spring and summer, and becomes very hard and loses its value to some extent. We use chalk also for drilling with root crops instead of ashes, and have this week directed the carting of chalk to a large barn mow, and desired the teamsmen to bring the finest chalk they can obtain. If, however, the weather becomes dry enough we shall send men to the pit where the chalk is within a few miles or a day's carriage, and screen it with an ash screen, then fetch it away and keep it dry in a shed or barn ready for use in spring and summer. This plan is the best surety against clubbed roots in the bulbs of Swedes, Turnips, Cabbage, Kohl Rabi, Thousand-headed Kale, and Rape. Mangolds and Carrots, however, seldom suffer from clubbed roots.

Live Stock.—The weather has been too wet for the sheep which are fattening in the field upon root and cake-feeding. They not only do but little for themselves, but tread the land to its injury for the next crop. They are in many cases, too, breaking out with the epidemic lameness and footrot; but our remedy is so perfect that in case each animal is treated the second day after breaking down, it does not suffer in the same foot again during the season. We were lately present when the feeding of dairy cows was the subject discussed, the points being the best and most economical food at this period for the production of butter, and also for the increase of milk intended for sale, or for suckling calves for veal. We have on certain occasions recommended the home farmer as to the feeding of his cows under both these circumstances. We consider nothing better for the production of butter of good quality when the cows are not fed upon grass, than bran and Potatoes, with a little sweet park hay, especially that which contains the Sweet Vernal kind of grass which gives the hay such an agreeable aroma, for this is sure to contribute a better flavour to the butter. As regards the economy of feeding with Potatoes, it will depend upon their quality, soundness, and cost. The large field Potatoes of the Red Giant growth will give a heavy acreable weight in the crop, and answer well, not being generally so much damaged by disease as many other varieties, and should be grown if it is intended to feed for butter-making. We know farmers who are now feeding cows with wheat meal; this is of course better than bran only, as the meal maintains the animals in better condition during the milking period. Where Potatoes cannot be had cheap enough we use Mangold or white Belgian Carrots, but it does not make butter of the like quality as Potatoes. In feeding dairy cows for the purpose of yielding quantities of milk only for sale, &c., we know of nothing better than distillers' grains, and the large Drum-head Savoy Cabbages. The Robinson's Champion Cabbage are very good, but they often decay partially at this period, whereas the Savoy are not affected by frost, and therefore maintain not only their feeding value, but will remain sounder for a longer time, and will not injuriously affect the milk. The Champion Cabbages will now be invaluable for ewes previous to and during the lambing season.

DONCASTER AGRICULTURAL SOCIETY.—I beg to inform you that the date of our next Exhibition is fixed for Wednesday and Thursday,

June 28th and 29th, 1882. The entries will close Saturday, June 3rd.—GEORGE CHAFER, *Secretary*.

POULTRY AND PIGEONS

CELEBRATED POULTRY YARDS.

WOOD END HOUSE, GRAVELLY HILL, BIRMINGHAM.
(H. TOMLINSON, Esq.)

DURING our stay at Birmingham in the Show week we had an opportunity of making a long-intended visit to the yards of Mr. Tomlinson, who has been for so many years known as one of the leading exhibitors of Cochins. Twenty minutes' run in the train from Birmingham brought us to Gravelly Hill station, and a pleasant walk through the country for another quarter of an hour found us at Wood End House.

This is one of those charming old-fashioned residences which are unfortunately becoming somewhat rare in the neighbourhood of our large cities. It is situated in sloping grounds, attractively wooded, and having a piece of ornamental water at the foot of the slope.

The appearance of the premises from the outside hardly suggests the presence of the vast number of birds which one would expect to find in the yards of so noted a breeder, and we wondered somewhat as we walked up to the hall door where such a number of birds were hidden away. Our subsequent chat with Mr. Tomlinson in the library explained this mystery. As a matter of fact, Mr. Tomlinson only keeps such of his birds as are immediately wanted for exhibition, and those which are for sale, at Gravelly Hill, the breeding stock being distributed amongst various cottagers, who each take charge of a yard of birds, and hatch the eggs and rear the chickens until they approach maturity.

The system which Mr. Tomlinson adopts is an extremely fair one, and must tend to foster amongst the cottagers who have charge of his birds a rivalry which is not without its advantages to the owner of the stock.

At the commencement of the season Mr. Tomlinson distributes his breeding stock without partiality amongst the cottagers already referred to. He exacts a rigid account of the number of eggs laid and set, and a weekly visit enables him to see how matters are progressing. When the chickens approach maturity he buys them from the rearers at a fair price; and as an example of what may be made by those who have charge of the breeding stock, we may say that Mr. Tomlinson during the past season paid to one rearer an average of £1 each for all the chickens reared. Mr. Tomlinson, also offers for competition a cup of some value, which is given to the cottager who rears the bird which is most successful at the Birmingham Show. That this plan as carried out here is capable of being successfully adopted the splendid chickens shown by Mr. Tomlinson abundantly testify.

Notwithstanding the narrowing of dimensions established by the means already indicated, Gravelly Hill is not without a considerable poultry establishment of its own. Almost facing the visitor as he turns to the right from the hall door are an old stable and coach-house. In a large room on the ground floor of the stable we found a numerous and goodly assortment of pullets of several varieties. Buff and White Cochins were most numerous, but Dark and Light Brahmas were not without their representatives. Mr. Tomlinson limits himself to the Asiatics, and is chiefly known as a breeder of Cochins, but many Brahmas in this yard were of considerable merit. The Cochin pullets were an even lot, round, fluffy, and amply feathered. In another part of the same building we found a range of pens, in which were confined a number of cocks and cockerels of the various breeds indicated, intended we believe for the auction which was to take place in Birmingham the following day to that of our visit. In the same building were also to be found the workshops where Mr. Tomlinson's well-known incubators are made, and the business offices connected with this branch of the establishment. We cannot attempt now to enter upon any discussion of the appliances which were to be seen here, but must reserve them for a future article.

Emerging from the back of the incubator factory and turning to the left, we found ourselves opposite a range of some dozen houses constructed upon a plan which seemed to us worthy of imitation. We are enabled by Mr. Tomlinson's kindness to put before our readers illustrations of these houses (p. 395), showing the plan (fig. 98), section (fig. 99), and elevation (fig. 100), which will give them a better idea of their construction than any words of ours could. In front of each house is a yard neatly gravelled of the same width as the house and about 12 feet in length. These houses and runs are here simply used for housing show birds, but they would be capable,

with the addition of a few grass runs, of being adapted for breeding yards of any of the Asiatic varieties. Most of their usual inhabitants were at the time of our visit in the show pens at Birmingham, but there were some few fine specimens left at home.

Returning past the house to the opposite side to that occupied by this range of runs, we found ourselves in a large run with an

adjoining house, occupied by some dozen white Cochin cockerels. These were very uniform in type and promising, but were too young when we saw them to form any accurate estimate of their ultimate qualities.

Further on still we came upon another good-sized run filled with Cochin and Brahma hens in various stages of moult. In conse-

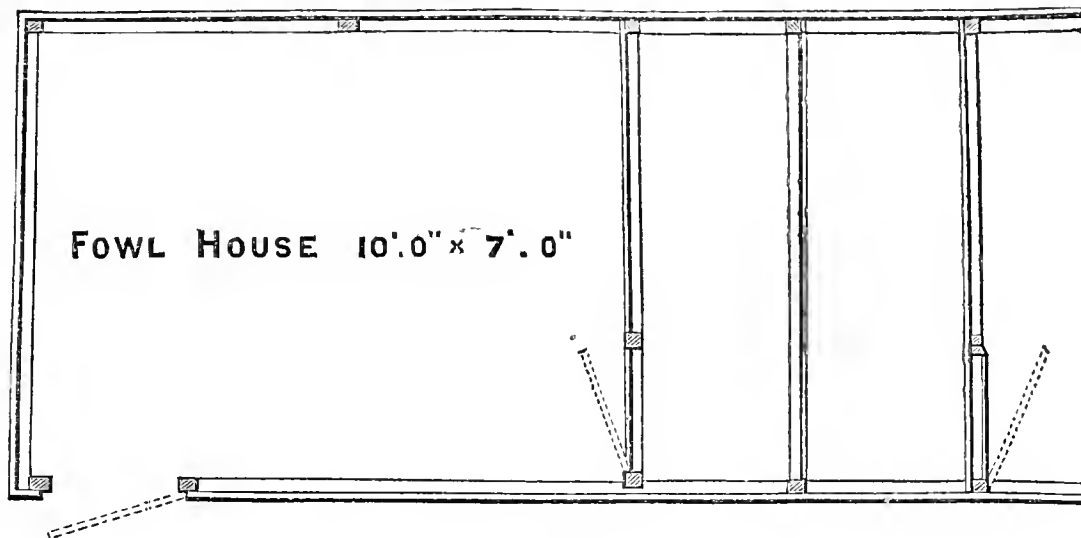


Fig. 98.

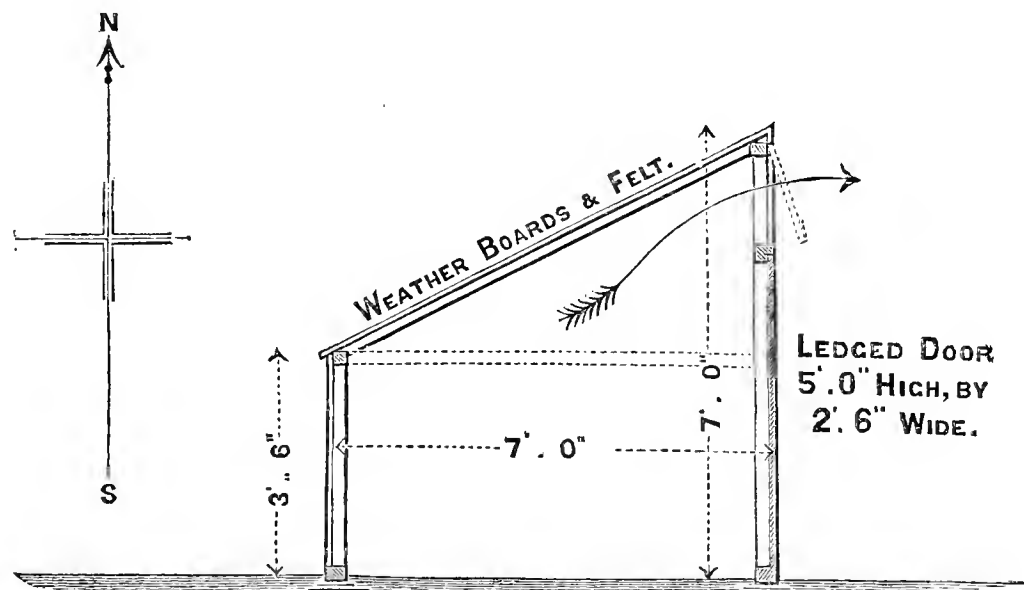


Fig. 99.

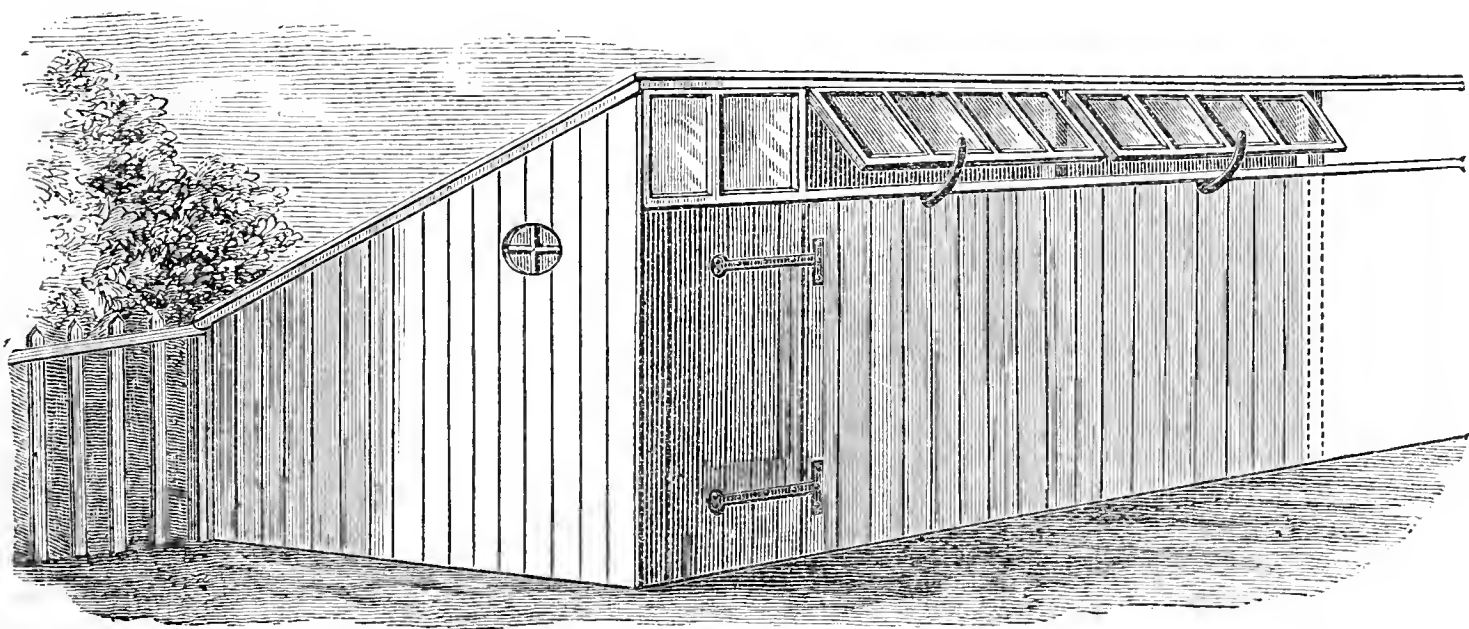


Fig. 100.

quence of the transition of plumage the Buffs were hardly so even in colour as at other periods of the year; but we were so much struck with the beauty of type as regards shape of the Cochins, that we shall, by Mr. Tomlinson's kindness, submit in a future number an engraving of his Buff Cochin hen "Empress," which our readers may well take as a model of true Cochin shape and character.

Further on still we came upon a lot of Buff cockerels, amongst which we noted several promising birds; and beyond these again a lot of raw young Dark Brahma cockerels, which, though hardly as pure in colour as we like, were of great size for their age, and had neat heads and combs and that sweeping outline which is so characteristic of this breed.

Beyond these again were some other houses built upon a somewhat similar plan to those of which we give illustrations, with this difference, however, that they were in pairs, and that the central part between each of the two houses was left as an open shed. We noticed here a wire running in front of the doors, which was rather suggestive to us of a thief alarm, and found upon inquiry to Mr. Tomlinson that our conjecture as to this was correct. This wire was in connection with an alarm gun placed near the house; and while it says something for the poultry-fancying proclivities of Birmingham, it does not say much for their honesty that Mr. Tomlinson finds it necessary to constantly employ a night watchman, watch dogs, and every other available means to secure the safety of his pets.

So ended our round of this celebrated yard, which when taken with the arrangement distributing the breeding stock amongst cottagers to which we have already referred, made up as complete an establishment as a fancier could well desire.

NOTES ON THE BELFAST SHOW.

BELFAST Show is the great event in the Irish fanciers' year. It came off last week, and though in numbers hardly up to some former years, yet the quality was remarkably good. The Belfast Committee are enthusiasts in the matter, and the Hon. Secretary is more than equal to all the duties of his post. We never, however, were at a show where there was less public support in the way of visitors. The same few familiar faces were to be seen eagerly scanning the exhibits and criticising the awards, but that was all. Mr. Leno, assisted by Mr. Mulligan for the local classes, judged the poultry, and Mr. Fulton the Pigeons, and the awards were generally well received.

We were struck with the number of English and Scotch names in the catalogue, and took the trouble to count up the exhibitors, exhibits, and prizes belonging to the Green Isle and this side the Channel respectively. Out of 132 exhibitors sixty-nine were Irish and sixty-three were not. The Irish exhibitors showed 604 pens—their visitors 251. Of 129 prizes and eleven cups offered for forty-three classes of poultry some forty-eight prizes and eight cups went across the water. Of 111 prizes and eleven cups for thirty-seven classes of Pigeons, some forty-three prizes and three cups again left the Green Isle. The Show may, therefore, be said to be as much an English and Scotch as an Irish one, and the honour of winning is about equal to that to be gained at a good English show.

THERE is, however, another side to the question. Does not this large influx of English and Scotch exhibits deter a number of Irish fanciers from competing? We incline to think it does. There is no doubt that in a general way the Irish fancier is not on an even footing with his brother on this side the Channel. There are almost daily shows here during the season and large prizes are offered. A big price for a bird can be afforded when there are a few ten-guinea cups for him to win. The sixty-guinea Brahma, for example, has won back for his owner a considerable part of his price already. In Ireland, however, shows are like angels' visits, few and far between, and high prices cannot be afforded for birds merely intended for home competition. A few Irish fanciers compete successfully in England, but they labour under great disadvantages as respects cost of carriage and through their birds being exposed to the risk of rough passages. The Belfast fanciers choose to admit all comers, and perhaps they are right; but there is, we think, something to be said in favour of limiting the competition to Ireland.

COLOURED DORKINGS were few in numbers, but of really first-rate quality. Messrs. Smyth showed three hens that we have not seen surpassed anywhere this year. Silver-Greys were numerous but not up to the English, or perhaps we ought to say Scotch standard. Brahmas were, through the liberality of a fancier who has during the past two seasons guaranteed the prize money, provided with eight classes. The cup Hull bird (second Palace) here took the cup for Darks. All the prizes for hens and two of the three for pullets went to Mr. Comyns, while Mr. Erskine kept up to his good beginning last year by taking the three prizes for cockerels with birds which but for their being slightly tanned might have won anywhere. They were all bred, Mr. Erskine told us, from the winning cockerel of last year mated with the cup hen of last year purchased from Mr. Comyns. Lights were not so numerous nor quite so good as the Darks; Messrs. Birch were as usual the chief winners. In pullets, however, they were beaten by a very large well-feathered bird of Mr. Ward's, and two well-shaped heavily feathered birds shown by Mr. Comyns, who made his first essay with the Lights here.

COCHINS were not so liberally classified as Brahmas. Mr. Ward's splendid pair of Whites were first in the old classes respectively, and the cock took the Cochin cup. Mr. Robertson and Mr. Pye each showed some good first-rate Buffs. In Buff chickens Mr. Kellsall

was deservedly successful. The cup for Spanish went to Scotland to an old cock of Mr. Street's, and the same exhibitor also took all three prizes for hens.

MR. J. A. MATHER was most successful in the Game classes, the winners being birds which have also taken prizes in England recently. Mr. Pickles was to the front in the three Hamburgh classes, while the cup for the French, Polish, or "Any other variety" went to a fine pen of Houdans of Miss Carter's. Mr. Ward stood first with Crèves, and Mr. D. Sullivan in Polish. Messrs. Bradbury won easily in Plymouth Rocks and Leghorns respectively, the Poultry Club cup going to the latter. These classes were very poorly filled.

THE Bantam cup went to Mr. G. Coulthard for Black Red Game, Mr. G. Anderton and Mr. Pickles winning in the other Game Bantam and other variety Bantam classes respectively. In the other variety class the first were Malays, second Minorcas, and third Sultans. Mr. Robertson took the Duck cup with a fine pen of Rouens; he also won several other prizes in these sections, as also did Mr. Mullan and Messrs. Birch, the latter gentlemen as usual heading the list in Turkeys and Geese respectively.

PIGEONS were a wonderfully good show. Space will not permit of our going into details, but we must mention the Red Jacobins, which were wonderful classes. Mr. Fulton awarded two equal thirds and four equal fourths to the cocks, and three equal fourths to the hens, and said he could easily have awarded more prizes to birds which could win almost anywhere.

POULTRY CLUB SHOW.—We are pleased to hear that the entries of poultry for this Show number nearly 1300. Pigeons, Cage Birds, and Rabbits will also be numerously represented, and bring the total up to 2250.

OUR LETTER BOX.

Cayenne Pepper for Canaries (*A. G.*).—It is mixed with the food of the birds and given to them to deepen the colour of the plumage. An equal mixture of egg, biscuit, and pepper is prepared by many fanciers, and the birds eat it readily.

Ox Cabbage Plants (*Yokel*).—Although the seed was sown in the spring, the plants, if they are very small and weak, may be pricked out in February, if the weather is favourable, thickly in newly prepared soil. After a few weeks' growth those inclined to run to seed will be seen producing long stems, the remainder may then be planted in the field. Plants thus raised and treated often produce the largest heads which can be grown.

Earth Floors for Cow Stalls (*Idem*).—If made quite level with fine dry earth rammed down hard, and the footpath behind is raised 3 or 4 inches above the floor, all the urine will be absorbed instantly by the earth floor, and only the solid excrement will be required to be removed. Much less quantity of straw will be required for litter by this than by any other plan; but the stalls should be narrow enough to prevent the animals from turning round; the dung will then fall only at the end of the stall, which will soil but little of the straw litter. As the urine is absorbed by the earth floor, and the ammonia fixed and deodorised, the air will be pure; when it becomes offensive the earth must be changed.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881. December.		Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun.	18	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	

REMARKS.

18th.—Frost in morning; bright cold day and windy.

19th.—Fine bright morning; rain in afternoon.

20th.—Gale in early morning; fine bright day with much wind; rain in evening, gale at night.

21st.—Fine and bright throughout.

22nd.—Fog in morning; fine day.

23rd.—Frost in morning; fine bright day; thick fog in evening.

24th.—Fair, but thick all day.

Temperature nearly the same as in the previous week, and rather below the average. Very low barometer on 20th, and gale of wind.—G. J. SYMONS.

